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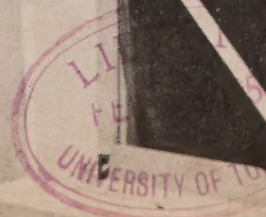


ONTARIO HYDRO

# News

JANUARY, 1953—VOL. 40 No. 1-12

JAN.-DEC, 1954—VOL. 41







# ONTARIO HYDRO News



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JANUARY, 1953

VOLUME 40

NUMBER 1

Published by  
THE HYDRO-ELECTRIC POWER COMMISSION OF  
ONTARIO

620 University Avenue, Toronto

## Opposition Disappearing

**M**ONTH after month, those who once opposed the important St. Lawrence Seaway and Power Project are abandoning their objections and rallying to the support of this great development.

Notable in this respect has been the change in attitude of the New York *Times*, for many years an unqualified opponent of the scheme. In a lengthy editorial on December 8, the *Times* made this significant remark in commenting on the hearings of the U.S. Federal Power Commission on the hydro-electric part of the plan:

"The end of the road seems to be at last in sight for the St. Lawrence Seaway and the connected hydro-electrical development of the International Rapids section of the river."

Pointing to the fact that every U.S. President since Woodrow Wilson, and every New York Governor from Hughes in 1907, to Dewey today, has supported the power scheme, the *Times* hopefully predicts that "this time there is nothing in sight to prevent the Federal Power Commission from issuing a license to the New York State Power Authority to go ahead and construct the hydro-electric project in co-operation with the Power Commission of Ontario."

It seems hardly necessary to say that all clear-thinking Canadians, particularly those resident in Ontario, fervently hope that the *Times'* optimism is not unjustified. For as this distinguished American journal points out, "The power is needed. The Province of Ontario is truly desperate for more power." Not only is Ontario in need of additional electrical resources, but New York and the whole northeast corner are also clamoring for more power. In fact as the *Times* states, "the need is so great that the private utilities providing the northeast with coal and steam power need no longer worry about competition or possible surfeits."

In the concluding paragraph, the newspaper deplores what has been called "the one great failure in the field of economic co-operation between Canada and United States," and warns that Canadians feel strongly about it — "so strongly that if the Federal Power Commission were once again to refuse a license for the hydro-electric development, there would be a bitter reaction from our northern neighbors."

We are confident that all Canadians and a good many of our American neighbors wholeheartedly endorse its feeling that "the plan will be as good for us as it will be for the Canadians and the time has come to go ahead full steam."



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## CONTENTS

## Page

Canada's Television .....	2
What of My Country? .....	5
Big as a Box Car .....	8
Vital Aspect .....	13
Around the Hydro Circuit .....	14
Foto-News .....	16
Making Good Progress .....	18
Contented Cows .....	19
Hydro Home Forum .....	22
F. J. Long Heads Inspectors .....	23
Ontario Hydro News Index 1952 .....	24

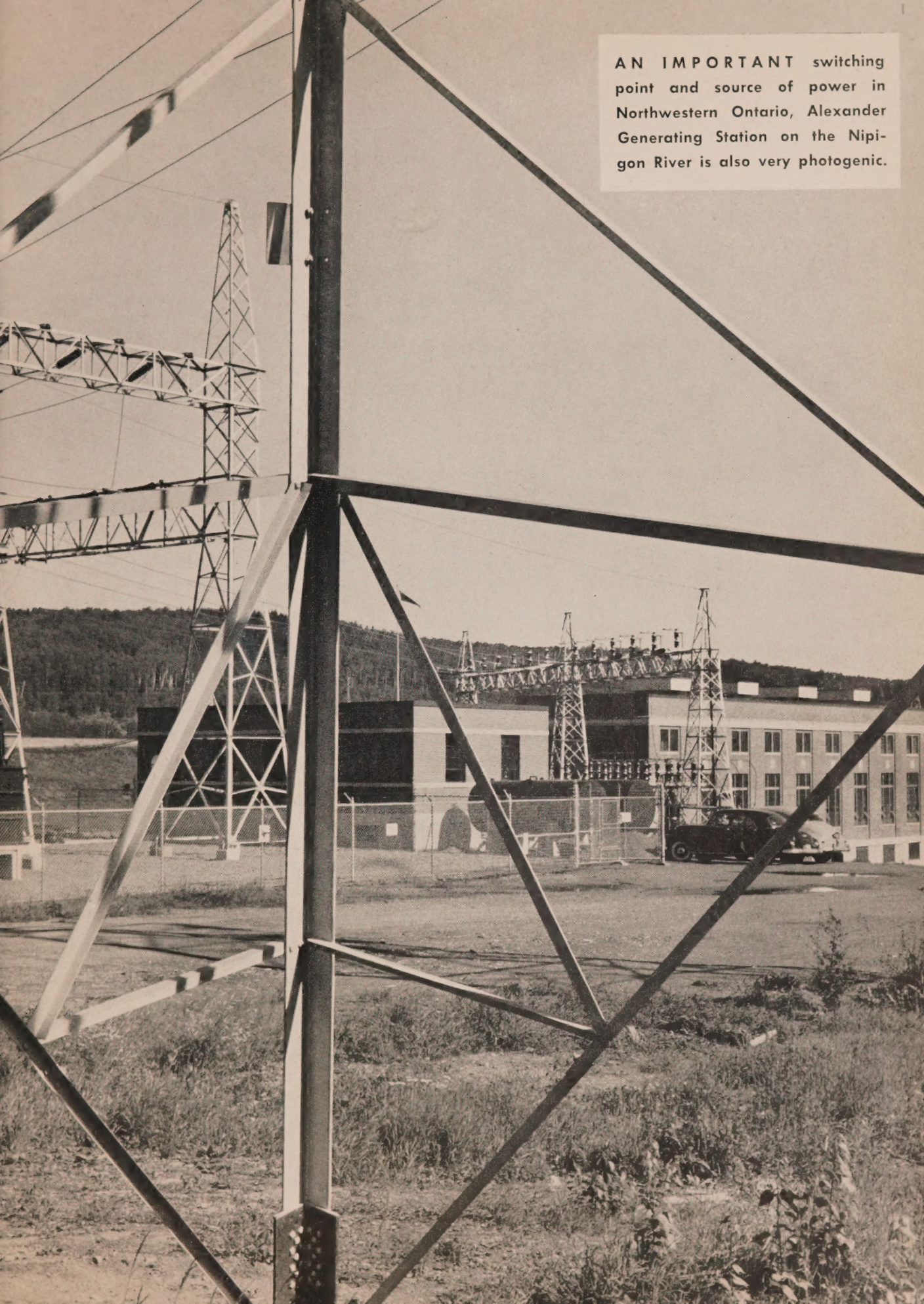
### COVER SHOTS

**T**YPICAL of the massive transmission and transformation equipment now being used by Ontario Hydro are the 25,000-kva form-fitting transformers at the Kenilworth Transformer Station, Hamilton, shown on this month's front cover. The photo on the back cover depicts a winter scene on the Mississippi River near Hydro's Galetta Generating Station.

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AN IMPORTANT switching point and source of power in Northwestern Ontario, Alexander Generating Station on the Nipigon River is also very photogenic.





by Allan Jones

Ontario Hydro advance 60-cycle power plan facilitated inauguration of . . . .

# Canada's

A "NEW ERA" spirit is stirring Canada at the present moment as the Canadian Broadcasting Corporation pioneers and expands in the field of television broadcasting at its initial studios in Toronto and Montreal.

But, behind this epochal event lies another interesting story — one that graphically illustrates the indispensable role of electricity in practically every sphere of activity today.

CBC engineers, who have had to face many "ticklish" problems in recent months, had one of their main difficulties solved for them by Ontario Hydro and the Toronto Hydro-Electric System.

Although Toronto is still, for the greater part, using 25-cycle power, the CBC was able to take advantage of a plan instituted by Ontario Hydro to retard the growth of 25-cycle load. This scheme permits new industries and other large customers in municipalities not yet "changed over" to receive 60-cycle power in advance of regular standardization operations.

Why is this fact so important to television?

Television equipment is not designed for operation at 25 cycles. While it wouldn't have been impossible to alter the complex "TV machines," a special production job, involving considerable trouble and additional expense, would have been necessary. Television engineers point out that manufacturers would have had to increase the size of power transformers and filtering condensers, requiring complete re-designing to accommodate the larger elements.

With 60-cycle power available, however, this problem disappeared, and the CBC was able to install standard equipment.

## Good Lighting

Another major, and continuing advantage of 60-cycle power for Toronto

THIS new 500-foot tower which now dominates Toronto's skyline transmits programs to a growing audience in Southern Ontario.



# TELEVISION

TV is the improved lighting which the higher frequency power affords. Since television, as its name implies, is essentially a visible form of expression, good lighting is a primary need. On it depends much of the success of a program, particularly those where emphasis is as much or more on what is seen, rather than on what is heard, as, for example in ballet or certain forms of drama.

Lighting with 25-cycle power is, as a general rule, unsuitable for television production, and is actually impossible when fluorescent lighting is employed. The heavy flicker in these units at 25 cycles has a "shutter" effect on the cameras, producing a picture which is alternately bright and dark.

This is also the case, although to a lesser extent, when cameras are aimed within close range of an incandescent 25-cycle light source, despite the fact that there is very little flicker apparent in these units to the naked eye.

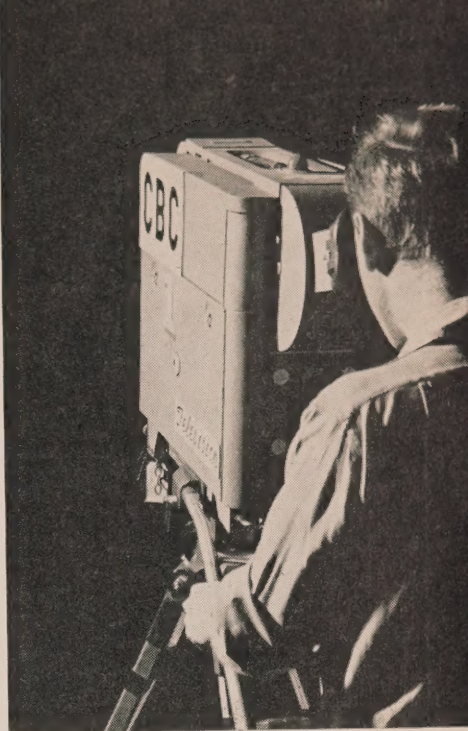
With the 60-cycle power the flicker and much of the trouble has been eliminated in Toronto CBC studios. However, the ingenuity of CBC engineers still has to be brought into play to overcome such problems when a television

"studio on wheels" is out doing on-the-spot broadcasts in the 25-cycle Toronto area.

Last winter for example, when a test telecast was made of a hockey game at the Maple Leaf Gardens, monitors suddenly noticed sections of the image screen start flickering as camera operators focussed on the crowd in the stands nearby. While the incandescent 25-cycle lights illuminating the ice itself were at a sufficient distance to cause no trouble when cameras were trained on the players, the lights came into the picture frame and set up a barrage of flicker when cameras were trained on the spectators. Advertising signs around the Gardens, rimmed with neon lights, were especially troublesome.

## Other Advantages

This particular operation pointed up in another way the many advantages of having a standard frequency throughout all of Southern Ontario. While the CBC had no difficulty getting 60-cycle current to operate cameras and monitors in the Gardens "test run," this was due to the fact that, for some years, Gardens authorities have had to maintain a 60-cycle circuit in the big arena in order to supply



TELEVISION cameras used in Toronto studios were made in England for 60-cycle power.

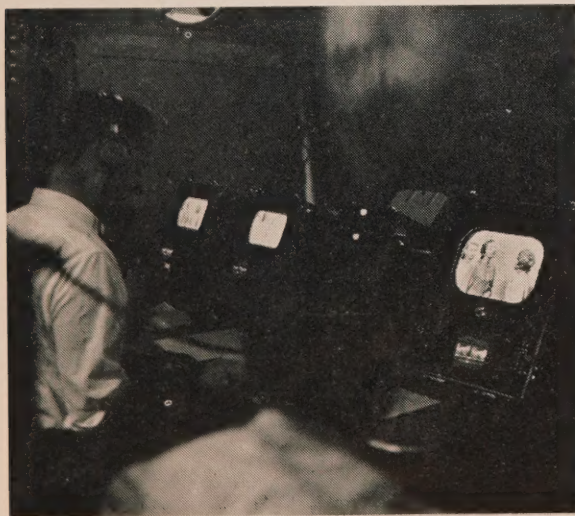
various shows arriving from the United States with 60-cycle equipment.

The eventual standardization of Toronto, and the rest of the Southern Ontario 25-cycle areas will, thus, not only considerably reduce CBC television problems, but many others as well. Another story concerning television makes this clear.

When stations in nearby United States 60-cycle areas began video broadcasting a few years ago, Southern Ontario manufacturers making receiver sets for sale

*(Continued on next page)*

TECHNICIANS watch the three "monitor" screens showing the picture "held" by cameras and fed to the transmitters.



MASTER control room in Toronto is a mass of major technical apparatus to co-ordinate programs, remote broadcasts, and station identifications.







ELECTRICITY plays important role in television, not only in the operation of most of the associated equipment, but also in studio lighting.

WITHOUT 60-cycle power this fluorescent fixture would not have operated satisfactorily for television purposes. Here John Howe, Patsy O'Day, and Jane Mallett appear in a scene from "The Kind Landlady."

## CANADA'S TELEVISION

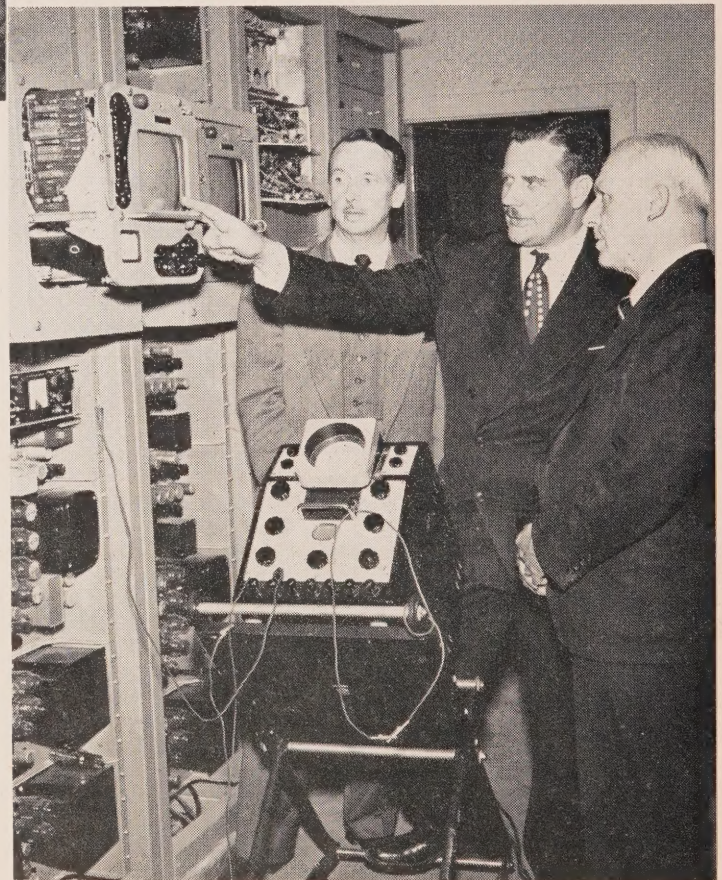
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in 25-cycle areas found they had to make provision in their sets for a performance problem caused by the cycle-difference at the production and receiving ends.

Specifically, they had to use larger transformers, and to increase filtering and shielding in the receivers. This was, and, of course still is, being done at extra cost for each receiver made for 25-cycle use. The saving in production costs when sets can be made solely for 60-cycle operation will probably be reflected in lower prices to the home-owner, one large Southern Ontario manufacturer pointed out recently.

This manufacturer, along with CBC television engineers, was firm in his belief that as far as television is concerned, there can be nothing but advantages result from the 60-cycle changeover in Southern Ontario.

The "benefits" story is actually being repeated many times over in other fields of industry and commerce affected by the "switch". Whether in the home, the industrial plant, or the office, "Operation Changeover" is providing a boon of almost incalculable importance.



J. F. TOMLINSON, Manager, Toronto Hydro's Power Sales Dept., left, and R. M. Durnford, Ont. Hydro Liaison Officer, Toronto Region, right, listen as R. W. Horton, CBLT Technical Director, explains function of picture monitor in master control room. Instrument below Mr. Horton's arm is an oscilloscope used for testing station's electrical equipment.



BY HORACE BROWN

# WHAT OF MY COUNTRY ?

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*(Crossing the threshold of another year, Canadians pause to consider the achievements of the past and to gather fresh courage for the challenge of the future. Dwelling in a country as vast as ours, we are apt, at times, to overlook the tremendous and breathtaking developments that are changing the face and the economy of this vast and prosperous land, and focusing the eyes of the world upon us. In this article, one of our staff writers has epitomized life in Canada today — a life still characterized by a pioneer spirit that is typically Canadian — a life that is the envy of all the nations of the earth. — The Editor.)*

---

## WHAT of my country?

Is it in the tick-tick of the ticker tape in a smoke-filled broker's office, heralding a gusher at Leduc? Is it in the affirmative vote at the annual meeting of the stockholders that builds a million-dollar plant two thousand miles away? Is it in the man in the air-conditioned office who says, "Yes, we'll do that," and springs a factory to humming life?

Well, partly . . .

Can I see my country 330 feet underground, as the twin five-and-a-half mile tunnels of Ontario Hydro's new Sir Adam Beck-Niagara Generating Station No. 2 are clawed out of the age-old earth? It is visible in the plans for the great St. Lawrence Seaway and Power Project that will take ocean freighters into the heart of the nation and send more vital electricity pulsing through Ontario's lively arteries? Will it be shown to me in the mountain-high Kitimat aluminum and hydro-electric development of the Rockies? It is in the laboriously-built railroads reaching for the iron ore deposits of Labrador?

Well, partly . . .

Is it in the smoothly-turning lathe, the whine of the power saw, as skilled hands fashion shining metal to unbelievable tolerance? Is it in the stream of men and women walking through the factory-gates to a day's work? Is it in the whirring wheels, the pushing pens, the tapping typewriters?

Well, partly . . .

Is it in the gush and roar of steam, as the drivers bite into steel and sand and the long freight begins its slow and snake-like climb into the

*(Continued on page 6)*







*Canadian eyes are focussed on the St. Lawrence Seaway and Power Project ....*

Rockies? Is it in the plume of black smoke far out on Superior that shows a lonely tanker bucking the rollers towards Toronto Harbor? Is it in the highballing transport, its eight great tires whining, laden with food for a village? Is it in the North Star pushing air away from its four props, as it touches down at Gander from a prosaic Atlantic crossing?

Well, partly . . .

Is it in the roar of the stamping-mill at the Lake Shore? Does it speak from the watered rollers at the Abitibi plant? Could it be in the belching smokestacks of Consolidated Smelters at Trail? Is it at Baie Comeau or the Gatineau where the logbooms drive for the mill? Does it echo the staccato of the lobster fishermen's engine as he puts his small boat out to the Atlantic for a living? Or the bark of the harpoon gun of a Newfoundlander on a whale-hunt? Is it heard in the whisper of the grain sliding from the mouth of the combine wandering its antediluvian way across the living Prairie?

Well, partly . . .

Do I find my country in the white and the red of strawberry shortcake, or the purple of blueberry pie? Is it in the Fundy clams or Winnipeg gold-eye or B.C. sockeye? Is it in the nip of Canadian cheese, or the mellow bite of Canadian ale? Do I taste it in genuine maple syrup, spread thick on hot, buttered pancakes?

Well, partly . . .

Do I hear my country in the soft murmurs of Muskoka pines, the wash of waters against Simcoe shore? Is it in the rush of the Restigouche, the leap and play of the fighting salmon? Is it in the sudden flight of duck from a Manitoba marsh? Or the glint of sun on a white sail off the Citadel of Halifax? Does it sing a song on the ski trails of Mont Tremblant? Is it in the chant of the crowd as the Leafs come from behind to beat Boston? Is it in the swish-swish-swish of the dripping paddle along the Saskatchewan?

Well, partly . . .

*--- which will bring the ships o*





Do I see my country in the lonely figure breaking Arctic trail behind straining dogs, his red coat hidden by a seal-skin parka? Is it in the flying fire-fighter hedgehopping across untracked bush to the plume of smoke that may yet consume a forest if unchecked? Is it in the man rattling an early-morning garbage-can or bottle of milk?

Well, partly . . .

Is the voice of my country spoken by the lonely man of words, struggling to build a nation with his poetry or prose? Do I see my country in the vivid strokes of brush and color put to canvas with heart's blood? Do I hear it speak in song, as the black notes leap to life from white paper?

Well, partly . . .

Is it in the melting Babel of tongues, the strange faces becoming familiar, the alien citizens who teach us the value of democracy through the fears they shed? Is it in the light skins and the dark skins, the hooked noses and the straight noses that belong to my fellow-countrymen? Is it in the voices from Parliament Hill, speaking for my country, speaking for me?

Well, partly . . .

Do I hear Canada calling me in the hush of the Peace Tower, in the belled tones of the Carillon? Is it illuminated for me in the names of Canada's

## TREMENDOUS INCREASE

During a recent address at Peterborough, Hydro Chairman Robert H. Saunders emphasized the significance of the Commission's 3,441,800-horsepower expansion program and its relation to Ontario's phenomenal progress. Started in 1945, just eight days after the cessation of hostilities with Japan, this program already has increased the Commission's dependable capacity by 73.1 percent or 1,897,600 horsepower. Between 1953 and the end of 1956 another 1,544,200 horsepower will be added to the Commission's resources.

sons in the Book of Remembrance? Is it on some foreign soil now made forever Canada by Canadian blood? Do I see it where Canadian troops stood firm at Ypres against the first attack of poison-gas, and inspired their breaking allies? Is it because my land is eternally linked with the names of Vimy, Paschendaele, Cambrai, the Battle of Britain, Dieppe, Caen, names ever green with the memories of supreme sacrifice and victories for freedom?

Well, partly . . .

It is these things and many more, my country. It is made up of a lifetime of my living, and centuries of my heri-

tage. It is in the tired smile of the mother, tucking the last of her children in bed in a small place called home. It is in the cool hand of the nurse, as she bends compassionately over a sufferer. It is in the hymn that floats from the open church doors of a Sunday morning. It is in the street-car operator who leaves his car to help a blind man across the street. It is in the lump in the throat and the smart in the eyes, as the bands go by and the uniformed men step out smartly and the flag waves them on.

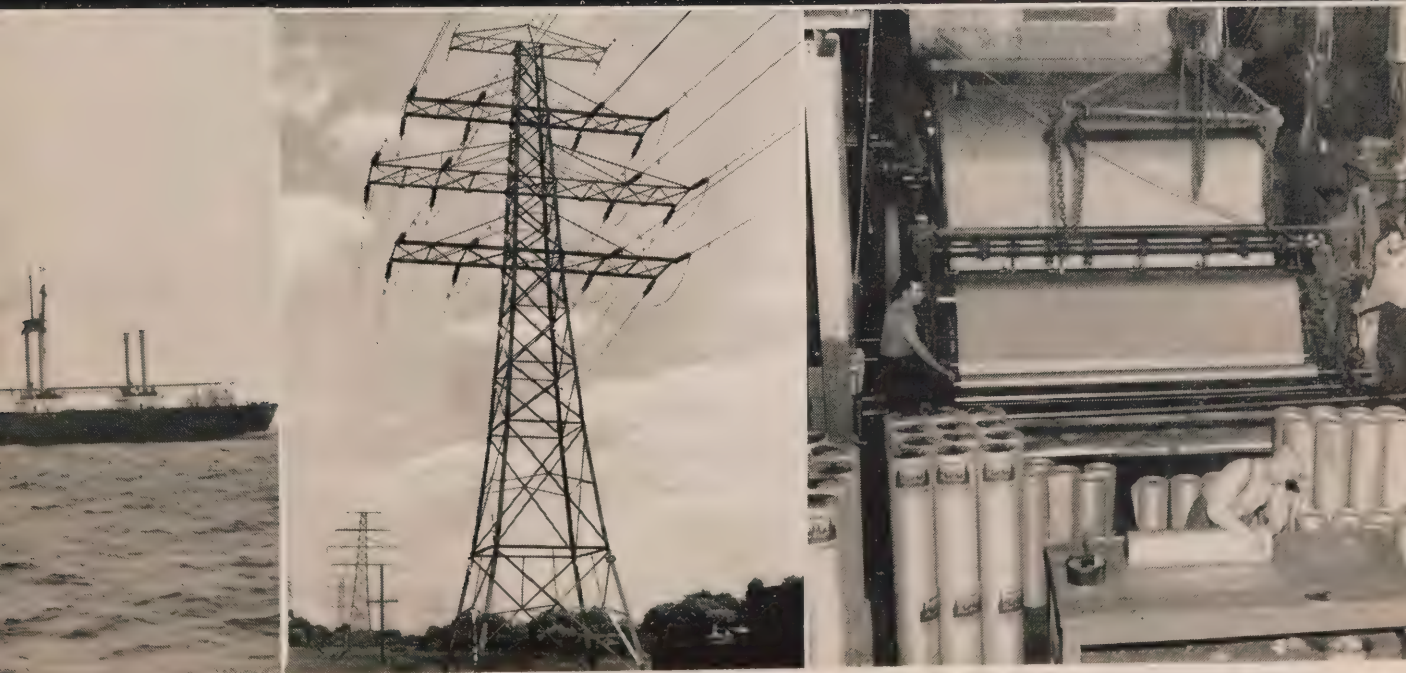
It is so much, my country.

The smallest and the greatest are my country. It is made of things and people, of sights and sounds, of feelings and hopes, of joy and sorrows. It is not afraid of the strong, and it is humble to the weak. It welcomes all, and denies none.

And if my country is sometimes wrong, it is because I am sometimes wrong. For I am my country, and my country is me. What I give to my country is what my country has, so much and no more. What I do for my country is what my country does, this and nothing else.

If I had a prayer, it would be: God, make me worthy of my land that it may be for those who follow after a haven and a heaven. Amen.

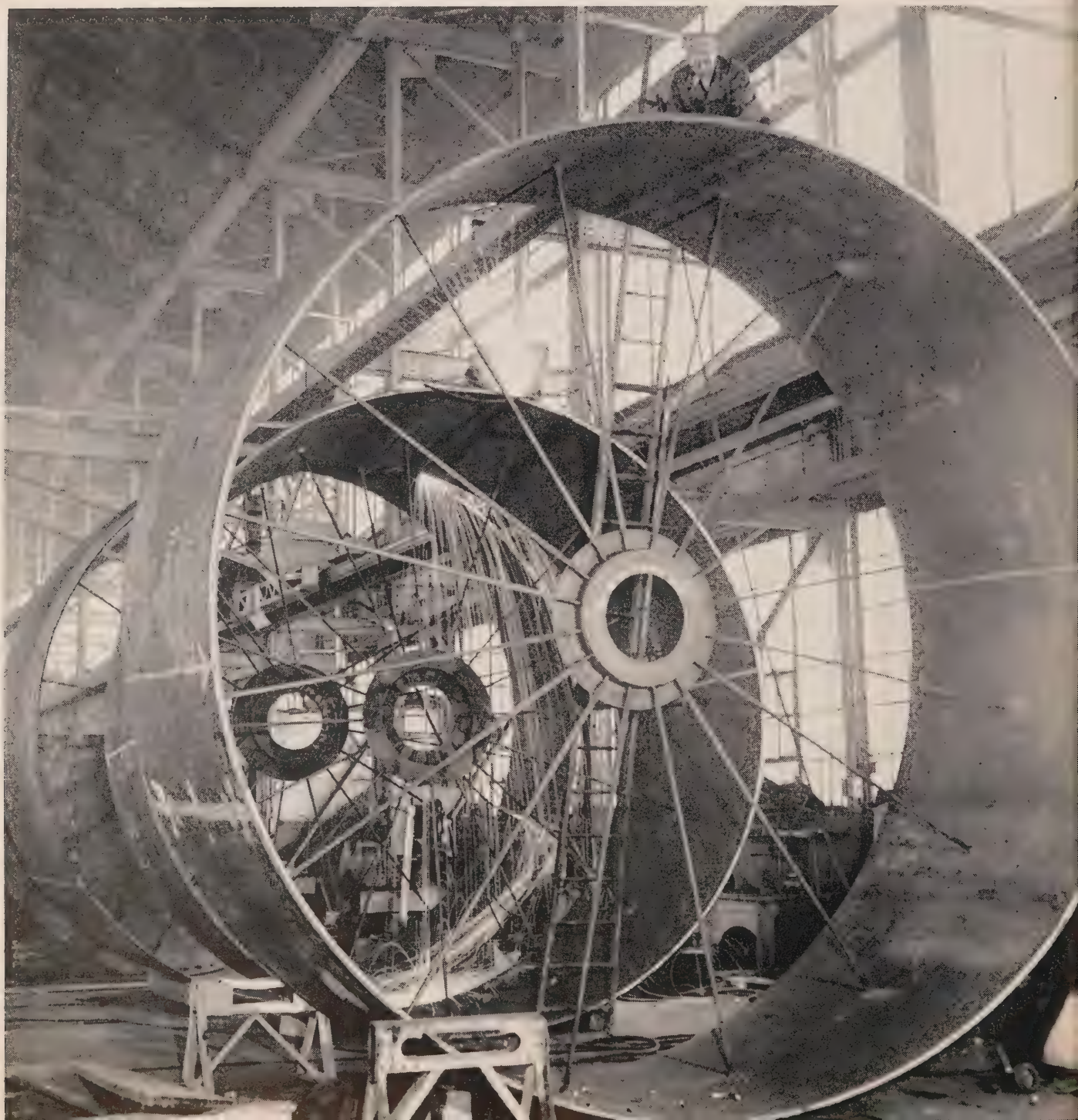
**to the nation's great inland ports and swell the flow of electricity to her farms, homes and growing industries.**





by **TED SANDERSON**

# **BIG** **AS A BOXCAR**







## Massive steel penstock rings are product of centuries of scientific experiment

VIEW of headworks at Sir Adam Beck No. 2 development. Visible, are intake structures. Water will enter these intakes and flow through steel penstocks to turbines in powerhouse some 300 ft. below this point.

**M**ORE than 20 centuries of study and experiment have gone into the design and construction of the great tubes—penstocks, in Hydro terminology — at Hydro's 1,200,000-horsepower Sir Adam Beck No. 2 project near Niagara Falls.

Big enough to accommodate a railway "boxcar", these giant penstocks will convey a total of some 15,000,000 gallons of Niagara water per minute from the forebay of Hydro's largest power development to the turbines in the powerhouse.

Twelve of them—one for each of the 100,000-hp. generators—will be fitted into deep crevices blasted out of the face of the 300-foot cliff near Queenston where construction of the new powerhouse is now well-advanced.

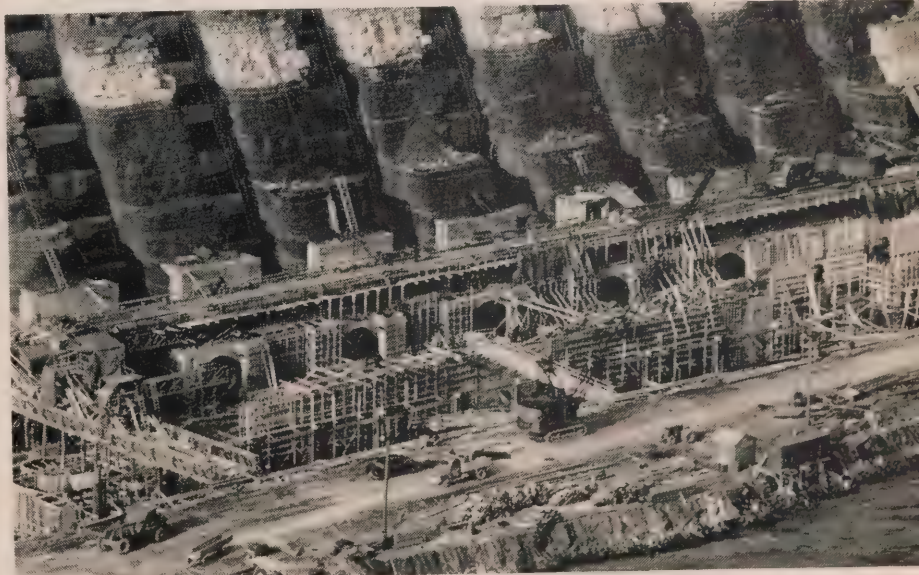
### In Strange Contrast

Massive steel structures, each measuring 492 feet in length, 19 feet in diameter, and weighing 500 tons apiece, they are in strange contrast with those first pipes made from hollow tree trunks which were used one or two centuries before the birth of Christ to drive water-wheels for grinding grain.

The first known use of waterpower was in China, Arabia and North Africa. A huge wheel was suspended so that its lower rim dipped into a flowing stream. Buckets were fastened to the rim of the wheel, and as the wheel turned, the buckets filled and rose to empty into a trough which carried the water off to irrigate the land.

Such wheels are still in use. Their power is used only to elevate water; but they save untold man-hours of dipping and carrying. They need no penstocks because their limited power is supplied by the movement of the water beneath them.

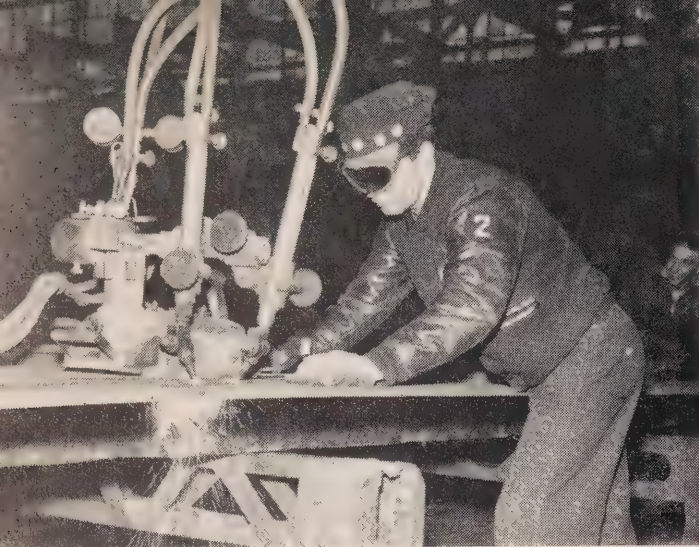
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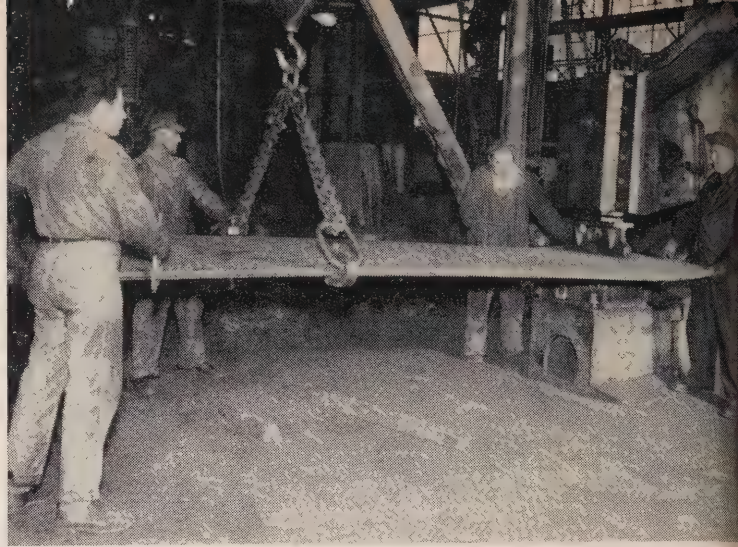
**UPPER PHOTO**—Powerhouse construction in progress. Penstocks will be fitted into deep trenches visible in the face of the Niagara River gorge. **LOWER PHOTO** shows powerhouse substructure with sections of three penstocks in position. On ramp above, at the right, giant crane is lifting another ring into place. A complete penstock consists of 68 steel rings.

**THREE RINGS**—each eight feet long and 19 feet in diameter — are being "readied" for shipment to Hydro's new Niagara project.





IN THE early stages of penstock fabrication, large steel plates are cut by acetylene torch. Edges to be welded are bevelled on both sides.



BOTH ENDS of steel plates are curved by means of "treader," right. Plate is moved with each tread until both ends have the right shape.

The Romans are credited with improving this wheel and taking it to England. They learned that when water from a high level was run through a trough or duct and dropped on to a paddle wheel from above, the weight of the water produced mechanical power more efficiently. The trough or duct carrying water to the wheel could be called a penstock.

#### Greek Mill

Closer in design to our modern types of generating equipment was the Greek mill, also believed to have been introduced in the pre-Christian era. The Greek mill seems to have been an independent development, not inspired or influenced by the Chinese or Roman wheel. The wheel of the Greek mill—or "runner" as it would now be called—turned horizontally instead of vertically. It was a crude, but recognizable ancestor of a modern turbine. The blades of the wheel resembled those of an electric fan rather than a paddle wheel, though probably the curving of the blades for greater efficiency was a later development.

In any case, water had to be poured on to the wheel with sufficient force to turn it. A penstock became a necessity to carry the water to the wheel and was made, in some cases, by scooping out a tree trunk.

Watermills of early England provided direct mechanical power for grinding grain, crushing ore, "fulling" woollen cloth, and pumping water. It was less than a century ago that waterpower was first harnessed to generate electricity, and watermills began to grow enormously in size and complexity.

The gouged-out log has long since

yielded to the scientifically-designed penstock. Today, some are still made of wood staves, bound together with steel, like the hoops on a barrel. Others are made of concrete. It is smooth welded steel, however, which is being used at Hydro's powerful high-head development at Niagara where penstocks must be permanent and of great strength.

#### Many Factors

Into the design have gone calculations of the friction offered to the passage of water; ability to stand tremendous internal pressures; durability, and annual maintenance costs.

If you can picture a pool of water 15 feet square and 15 feet deep, that is just about the amount of water which will be discharged from one penstock in one second when the penstock is running at full speed. Actually, the water in the 19-foot diameter Niagara penstocks will travel at 13 feet per second when the generator is operating at top capacity. The gates at the bottom of the penstock will regulate the speed of the water automatically, according to the amount of electricity to be drawn from the generator (the greater the electrical draw, the harder it is to turn the generator, so the regulating gates let just enough water through to keep the generator turning at constant speed). The penstocks remain full of water at all times while the generator is in operation, ready to deliver more power at the instant a Hydro customer turns on his electric range or someone starts up a giant industrial machine.

So the penstocks at Niagara will have to withstand great and constant pressure. But how strong must the penstock be?

If it is too thick, money is wasted. If it is too thin, the penstock may burst or collapse.

Water pressures increase progressively from the top to the bottom of a penstock. Thickness of steel for the top part of the penstock could actually be very light on the basis of pressure alone, say Hydro engineers. However, ordinary structural strength dictates that a steel tube 19 feet across must be at least  $\frac{5}{8}$ -inch thick to hold its shape. The top sections of the penstock thus require steel  $\frac{5}{8}$ -inch thick, and this increases by  $1/16$  inch in thickness in other sections up to a maximum thickness of  $1\frac{1}{2}$  inches near the bottom of the penstock—just before the diameter of the tube begins to reduce.

#### Diameter Problem

Another aspect of the problem is diameter. The greater the diameter of the penstock, the more steel is required and the greater the cost. At Niagara, the penstocks will each have a diameter of about 19 feet for the first 418 feet, so the water in this section can travel slowly with a minimum of friction. Then the diameter is gradually reduced to about 13 feet 8 inches over the final 74 feet to speed up the water just before it enters the turbines.

Purpose of these figures, is to illustrate that the modern penstock is the product of much skilful engineering. But there were further considerations in designing the penstocks for the new Niagara plant.

It is no accident that they will be almost horizontal for the first 100 feet or more and then dip over the cliff at an angle of 30 degrees with the vertical before levelling off again just before they





**NEXT STEP** is the "cold" bend. Plates are passed between three vertical rollers. Curve is tested by a wooden gauge, called a "sweep."

reach the turbines. This design is based on the premise that the water will follow such a sloping curve with the least disturbance.

The final stage in assembling each 500-ton penstock in its permanent channel, blasted out of the cliff face, is to encase it in concrete. The concrete permanently anchors it to the cliff and the lime in the concrete acts as a preservative for the steel, which, therefore, needs no painting nor other protective covering.

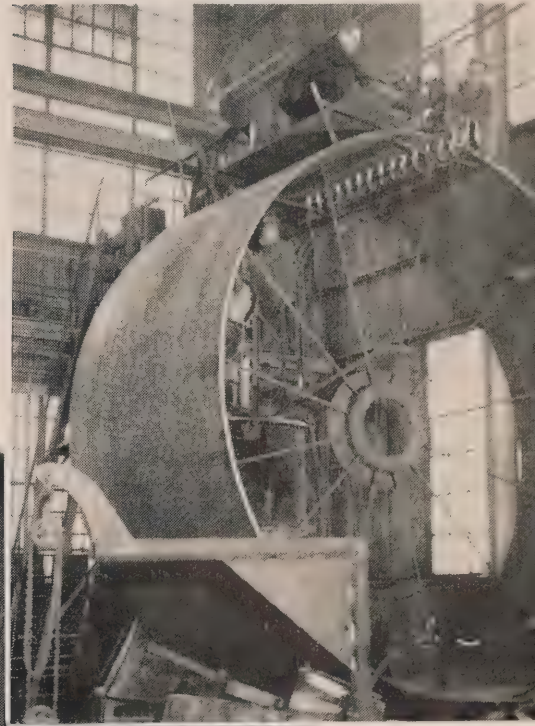
#### **Manufactured at Fort Erie**

So much for what is required. Now let us go for a quick look at the Horton Steel Works in Fort Erie, where these mighty and intricate penstocks are being made. Here, no roaring furnaces or large areas of hot glowing steel are featured. In their place are cascading showers of sparks from cutting torches and grinding wheels; a thin glow from a welding torch working on the other side of a steel plate, and the clatter of pneumatic hammers and chisels — so deafening you can barely hear your own voice. Steel forms, large and small, swing through the air, suspended by cables from a travelling crane, high above.

The great steel plates for Hydro's penstocks are laid on tables or trestles. Men work around them in comparative quiet with blueprint plans and pots of paint, marking them for cutting and drilling as a tailor would mark his cloth with chalk. Each plate carries a manufacturer's number and at any time its whole history and chemical analysis can be found in the records. A sample is cut from each plate, marked with all identifying information, and is delivered to a Hydro inspector for testing. The

*(Continued on next page)*

ONE of the three seams of an assembled penstock ring is undergoing an automatic submerged weld. Spokes in rings are removed after penstock is installed and completely imbedded in concrete.



**WORKMAN** smooths out weld with grinding wheel, removing last visible trace of seam. Even an X-ray would not reveal the welds.





information includes the exact position the huge steel plate will have in a specific penstock.

The marked steel is picked up by crane and moved to a cutting table, but there is no top on this table. Rows of legs project from the floor, and the plate lies flatly upon them. The steel is cut by the acetylene flame which can follow marked lines as flexibly as a jigsaw working on wood. All the edges to be welded are then bevelled on both sides to exact specifications, and the plate is ready to move to the fabricating area.

Each of the 68 steel rings which go into a penstock is eight feet in length (or less on one side if it is to fit a bend) and is made to exactly fit the designated spot in a specified penstock. These rings are shipped individually from the plant to the power site where they are placed in their exact, permanent position. They are then welded together by hand. It will take over eight miles of hand welding to join together all the rings of the 12 penstocks serving the 12-unit generating station.

#### Bent "Cold"

To make these penstock sections, each of the three standard steel plates required for just one section must be bent "cold," i.e., not heated, to fit perfectly into the ring for which it is intended. These plates—even the thickest—are bent to a perfect circle curve by repeated passing between three large vertical rollers, two on one side and the single roller centred between them on the other side. The single roller is under controlled pressure so that it tends to bend the plate into the hollow formed between the two back rollers.

As the curve takes shape, it is tested

from time to time by a workman using a wooden board-like gauge called a "sweep." When the sweep fits the curve, the rolling stops.

However, for the rollers to work, the steel must rest against the back rollers. Toward the ends of each plate there is a part that is too short to span both rollers, and this part must be curved by a process known as "treading." The treader is one of Horton Steel's "home-made" machines. It can be best pictured as a giant paper stapler. The upper part that pushes down is a ram with a 450-ton pressure. The anvil below is a tool with a long U-shaped groove running lengthwise, so that the tool on the ram would fit into the groove if there were no steel plate between.

Before a plate goes to the rollers, it is picked up by a crane, using chains and hooks to hold it horizontally. A crew of men push and guide the heavy plate until its end is between the jaws of the treader. The ram begins to push down with a treading motion, forcing the steel to bend into the U-shaped groove. The men keep the plate moving with each tread, working across the plate until the whole end has the exact curve required. The same operation is then repeated on the other end.

#### Three Plates Form Ring

When three plates for a ring have been shaped, they are stood upright to form the ring. Blocks of steel are welded temporarily across the joints to hold them in position. Then heavy steel rods are welded inside like the spokes of a wheel, running between the wheel and a circular "hub." These rods, called the "spiders," are to ensure that the ring remains a perfect circle, and they are not removed

until the penstock is completed, installed, buried in concrete, and the concrete has set.

The assembled ring is set up on its perimeter by the travelling crane, and carried to an automatic welder for the final welding of the three joints by a two-man welding team. Rows of gas jets preheat the steel at the joint. This weld, called an "automatic submerged weld," leaves a raised welt of metal along the seam. The ring is next moved to a point where men with cutting torches and grinding wheels smooth out the welds perfectly and remove the temporary connecting blocks. The welds are X-rayed and any flaws cut out and rewelded to the high standard of perfection demanded.

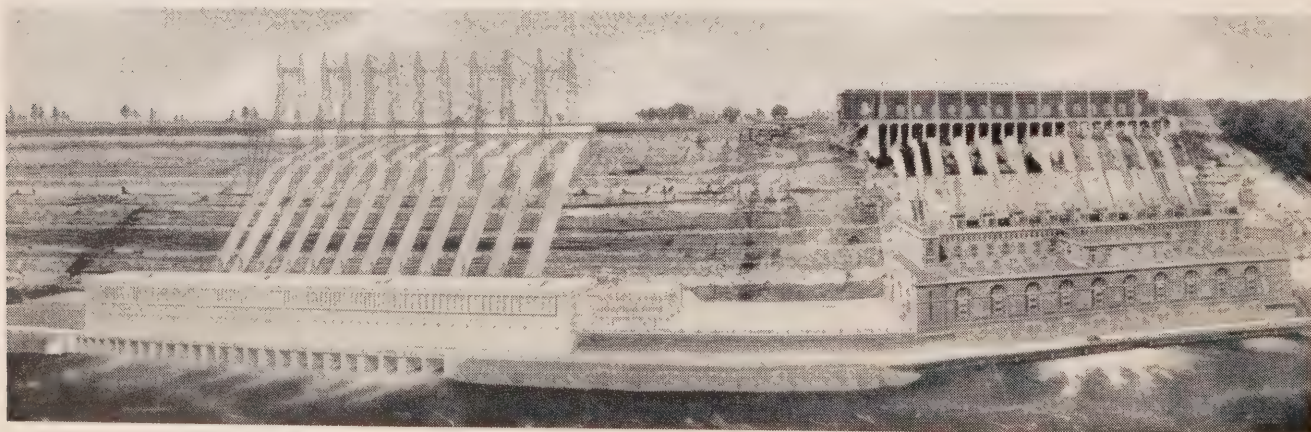
With all tests passed, one ring (one 68th part of one penstock) is ready to be loaded on a truck to go, under police escort, to its permanent post of duty on the cliffside of the famous Niagara gorge.

#### Assembly Difficult

Assembly at the site is a problem in itself. Some of these individual rings weigh as much as 15 tons. They must be delicately and exactly placed in position, each ring spaced from its adjoining rings by precisely three-sixteenths of an inch. This space is required for the hand welding, and must be so accurate that when the top 68th ring is placed it will fit in with just the right space for welding to the next lower ring and to the structure at the top.

To all appearances, even to the X-ray, the completed penstock is a solid jointless unit, smooth inside and out — a fitting tribute to the knowledge man has gained on this subject over the centuries.

SCHEDULED for initial operation in 1954, the 1,200,000-horsepower Sir Adam Beck Niagara Generating Station No. 2 is depicted in the drawing (left) by Hydro Architect Kenneth Candy. Photo also indicates the marked change in powerhouse design since Sir Adam Beck G.S. No. 1, (right) was opened in 1921. Penstocks will be encased in concrete envelopes.





# VITAL ASPECT

## *Line clearance operations play important role in Ontario Hydro's rural electrical service*

AS Ontario Hydro's rural service program gains increasing momentum, bringing the benefits of electricity to hundreds of new customers every year, it, simultaneously, is focussing attention on another vital aspect of the Commission's operations.

Line clearance, as it pertains to maintenance and operation of Hydro's rural lines, covers several distinct phases of activity.

For example, it includes pruning of trees which means, in effect, removal of limbs and branches of trees to prevent interference or contact with rural lines. It also involves removal of decayed or diseased trees that present a definite threat to an adjacent line. Another form of line clearance is tree-cabling (bracing two main branches of a tree above the crotch of the tree) to prevent the main trunk from splitting and falling on the line, while cutting and control of underbrush (spraying with chemicals) is an additional duty for forestry and rural line crews.

Why is line clearance so important and necessary?

First answer to that question can be found in the significant prerequisite of continuous and dependable service, for, in common with his urban brother, the rural customer has become a prodigious user of a variety of labor-saving devices operated by electricity. On the modern Ontario farm, oil burners, milking machines, pumps, grain grinders and numerous other types of electrical equipment are a familiar and common sight.

Therefore, it is imperative that rural electrical service be continuous, involving a correspondingly higher standard of maintenance and rehabilitation.

Trees which come in contact or otherwise interfere with rural lines constitute one of the greatest potential threats to uninterrupted service, particularly during

severe snow, ice, or wind storms. For instance, a sleet storm in February, 1950, covering a distance of 180 miles of rural line destroyed over 1,000 poles and associated equipment in Western Ontario, requiring an expenditure of some \$560,000 to restore service.

Recognizing the paramount importance of preventing recurrences of such interruptions in services to its rural customers, the Commission has instituted and is pushing forward an accelerated program of line clearance which, it is anticipated, will have far-reaching effects on its rural services.

In order to augment its force of skilled men to maintain the thousands of miles of transmission and distribution lines spanning Ontario, the Commission in 1945 established a training school in Etobicoke Township near Toronto for linemen. In 1948 forestry was added to the curriculum of this unique establishment.

Since that time large groups of trained forestry personnel and linemen have graduated from the school. Last year courses, lasting from two to eight weeks, were attended by 121 forestry employees, compared with 90 forestry graduates in 1951.

Hydro's forestry crews have been augmented further in the past few years by contractors and their staffs engaged to carry out line clearing in certain districts. By the end of 1952 the Commission had more than 500 men (foresters, laborers, and contracting staff) engaged in forestry operations including the important job of line clearing in rural areas. In addition, Hydro linemen operating out of the Commission's 106 Rural Operating Area offices were supplementing the activities of Hydro's foresters and contracting staffs in their own particular districts.



**INCREASED USE** of electricity in Ontario's rural areas has made continuity of service imperative, bringing into sharp focus the importance of Hydro's line clearing program.

Line clearing was drastically curtailed during World War II due to labor and material shortages, thus creating a heavy backlog of work. In 1949, 1950, and 1951 line forces were busily engaged in rural extensions and so could devote little or no time to the work of line clearing. This work kept building up until 1952 when, with additional forces available, the work was accelerated.

In 1945, Hydro spent only \$19,059 on rural line clearing. At that time, the

*(Continued on page 15)*



# AROUND THE HYDRO CIRCUIT

## Veteran Commissioner Retires

COMMISSIONER JAMES HALLIDAY, Kingston Public Utilities Commission, who has been Chairman on at least seven separate occasions, concluded almost 25 years' public service with the local utility when he retired at the end of 1952.



James Halliday

Looking back, Mr. Halliday describes his years on the commission as nothing less than "first rate." Born in Portsmouth, Mr. Halliday received his early education locally, then moved to Kingston where he attended Mills private school. He was Reeve of Portsmouth for seven years during which time he was also a member of Frontenac County Council, serving one term as Warden.

Mr. Halliday spent several years with the old Kingston Street Railway Company as electrical superintendent. He was also active in the hardware business locally. Later, he went into business for himself and was for many years known as one of Kingston's leading electrical contractors. Mr. Halliday retired from active business life about 20 years ago.

## EXPAND NEUSTADT SYSTEM

Neustadt Hydro-Electric Commission has received authorization to spend \$7,500 from available funds for extensions and improvements to its electrical distribution system during 1953.

## Loftus H. Reid New O.M.E.A. President

APPOINTMENT of Loftus H. Reid, 1952 Chairman of the Toronto Electric Commissioners to the Presidency of the Ontario Municipal Electric Association has been announced by the Executive of that body.

Mr. Reid will complete the unexpired term of office of the late Frank H. Plant of Ottawa.

Prominent in public affairs for many years, the new O.M.E.A. President brings to this honored post a wealth of experience.

A gifted speaker, Mr. Reid was first named a Toronto Electric Commissioner in 1930. In addition to his significant role in the activities of the Toronto Hydro Electric System and the O.M.E.A. he was, for a number of years, a member, as well as Chairman of the Toronto Board of Education. It is interesting to note that he was also a member of the Royal Commission on Education for the Province of Ontario.

Born in Enniskillen, Northern Ireland, Mr. Reid served with the Canadian Expeditionary Forces from 1914. Among



LOFTUS H. REID

his other affiliations, he holds memberships in the Toronto Board of Trade, Empire, and Canadian Clubs. He is exceptionally proud of the honor of being a Freeman of the City of London, England.

Married, with two sons, he counts fishing and shooting among his other interests.

## Stitt Heads Metermen

D. J. Stitt, Morrisburg, was elected President of the Eastern Ontario Metermen's Association during the annual meeting at Renfrew.

The meeting, in charge of President C. E. McGuire, was featured by a paper on "Meter Shop Practices" presented by L. A. Blaker, Meter Shop Superintendent, East Central Region, Belleville. Following luncheon served at the Renfrew Recreation Centre, J. M. Bogart, Sangamo Company Limited, Toronto, gave a paper on "Servicing of Meters," while N. J. Lake, Industrial Survey Engineer, On-

tario Hydro, discussed "Power Factor Surveys and Economics."

Guests were welcomed to Renfrew by Mayor J. T. Moran.

The following executive was named to assist Mr. Stitt for 1953: C. E. McGuire, Ottawa, Past President; F. H. McColl, Ottawa, 1st Vice-President; H. W. Little, Brockville, 2nd Vice-President; M. K. Thompson, Ottawa; C. Smith, Pembroke; H. Delorme, Cornwall, and E. A. C. Symons, Kingston, Directors, and Edwin Rice, Morrisburg, Secretary-Treasurer.



## CHATHAM STAFF GUESTS AT VENISON DINNER

**"BLUE plate special"** at Chatham Hydro's recent staff party was venison provided by Manager R. S. Reynolds after his annual northern hunting trip.

Approximately 110 guests including commissioners, employees and friends gathered at the Queen Street sub-station to vouch, not only for the hunting prowess of their Hydro Manager, but also a fine spirit of staff comradeship.

A feature of the program was the presentation of a "25-year button" to Robert Andison, who has completed 25 years' service. Mr. Andison came to Chatham from Petrolia and started with the line crew. He became one of the station operators in 1947. The presentation was made by S. G. Thomson, Chairman of the Commission.

### VITAL ASPECT

*(Continued from page 13)*

Commission was serving only 156,560 rural customers over 21,569 miles of rural line.

Since that time there has been a phenomenal increase in Hydro's rural operations, with a total of 340,685 rural customers being served over 39,967 miles of line at the end of November, 1952. Line clearing work which might have been done in previous years had to be carried out in 1952: a year of high labor and material costs. It is estimated that line clearance in 1952 will have involved an expenditure of about \$1,356,000—over 70 times the expenditure for this type of operation seven years ago.

The necessity of providing a higher standard of service to rural customers was cited by Chairman Robert H. Saunders during a recent address as one of the major reasons for an increase in rural rates averaging less than 15 percent.

Easing the work load of the farmer and bringing added convenience and comfort to the rural home, Hydro service will be extended to many thousands of new customers during the present year. With each new mile of rural line added will come new responsibilities for Hydro's foresters and linemen as they faithfully and painstakingly continue the job of maintaining and protecting this vast and growing network.



SECRETARY A. A. Gibbs, left, and President O. V. Anderson, right, discuss plans for banquet.

## TORONTO HYDRO QUARTER CENTURY CLUB OBSERVES 25th ANNIVERSARY

**O**N February 6 this year, Toronto Hydro's Quarter Century Club officially joined the 25-year ranks along with its 611 members.

With some 500 or more members of the Club in attendance, this year's annual dinner was a marked contrast to the organization meeting and dinner in 1929. In April of that year, J. B. Kitchen and E. G. Flowers laid the basis for a Long-Service Club with membership extended to those who had attained 20 years' service.

In 1935, it was decided that the club be organized on a 25-year basis, and no further members were admitted until all of the existing membership had attained 25 years' service.

Another tradition was established in

1949 when 40-year service pins were presented to Mr. Kitchen, and to Walter Sellors, who joined the Toronto System late in 1909. Since that time the Toronto Management has presented pins and certificates in recognition of 25 years' service and 40-year pins to club members attaining 40-years' of service.

At the beginning of the present year, approximately 611 employees were eligible for membership in the club. Representing approximately 20,000 employee years, these members constitute about 35.8 percent of the total employees.

The 1953 annual banquet was held in the Concert Hall of the Royal York Hotel, commencing at 6.30 p.m., February 6.

### RECORD TOTAL

**T**OTAL installed capacity of water-power plants in Canada has reached 14,304,230 horsepower, the Water Resources Division, Department of Resources and Development, reveals in its annual review of electrical power production and distribution.

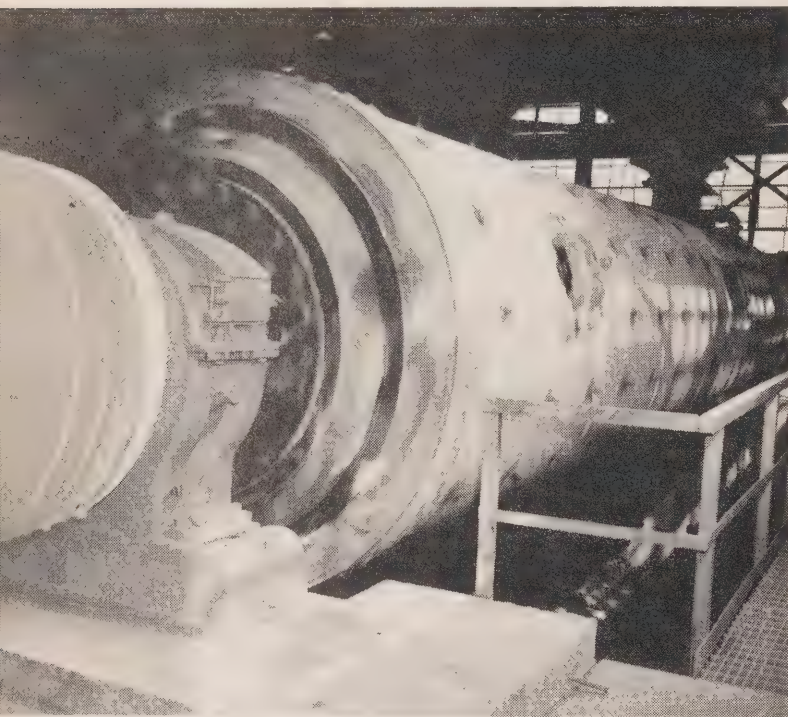
The record-high total of 1,064,600 hp. of new hydraulic turbine capacity was brought into operation in 1952 but, allowing for dismantling of old

plants and list adjustments, the net increase was reduced to 961,726 hp.

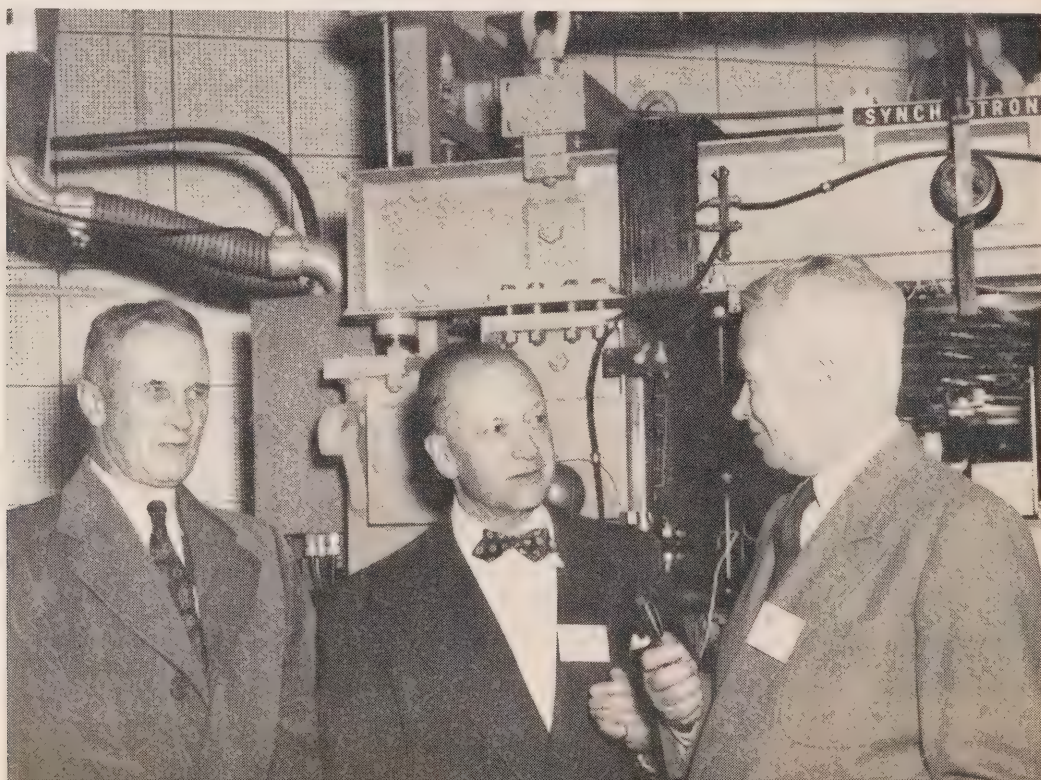
"Supplemented by the output of new hydraulic and steam plants, total production of electrical power was at a rate of approximately eight percent above 1951. In the country as a whole, power production facilities were sufficient to meet the present demand but little reserve capacity was available," the report states.



**IMPORTANT TASK**—Recent changeover operations at the plant of the St. Mary's Cement Co. Ltd. for operation at 60-cycles involved some 600 frequency-sensitive items, including motors ranging up to 600 horsepower. Outstanding among the equipment standardized were huge revolving kilns 365 feet long and up to 10 feet 6 inches in diameter. Ontario Hydro itself is an important customer of the St. Mary's Cement Co. and many thousands of tons of its output have gone into the building of the Commission's projects throughout the province.



**OPEN HOUSE**—During the recent Engineering Open House at Queen's University, Kingston, when more than 100 executives of business, industry and government watched the "wheels go round" in the Faculty of Applied Science, H. S. Van Patter, Vice-President and General Manager, Dominion Engineering Works, Montreal, J. R. Montague, Director of Engineering, and Dr. Richard L. Hearn, General Manager and Chief Engineer, Ontario Hydro, were photographed beside the University's 70,000,000 electron-volt synchrotron. The synchrotron is being used in nuclear research at the university with conspicuous success. Head of the physics department which has charge of the atom-smashing machine is Dr. B. W. Sargent, formerly of Chalk River, Ontario.





# NEWS

**LUCKY ALL 'ROUND**—In the past two years it has become a popular custom to toss pennies into the ornamental fish pool at the base of Hydro's famous floral clock at Niagara Falls as a gesture to Lady Luck. Tourists visiting the big floral time-piece during the 1952 summer season tossed \$288.92 in coins in the pool. When the pond was emptied for the winter recently, Hydro employees scooped out about 150 pounds of coins, principally coppers, which were taken to the International Silver Company at Niagara Falls where the coins were cleaned through the courtesy of the management, and sent to the bank for counting. In the accompanying photo, A. S. Robertson, Manager, Niagara Region, left, and G. E. Conn, Regional Accountant, centre, present cheque for the full amount to Miss Winnifred Stokes, retiring President of the Greater Niagara Community Chest.



**PREPARATIONS UNDER WAY**—Another important phase of Ontario Hydro's frequency standardization program will be the changeover of 25-cycle generating stations in Southern Ontario. The first station to be affected will be the 25-cycle plant at Decew Falls near St. Catharines. Plans call for the changeover of one of the two units at this plant in 1954. The remaining unit at Decew, required to provide 25-cycle power for the last areas to be affected by the standardization operations, will not be changed over until the final stages of the program of converting generating equipment.





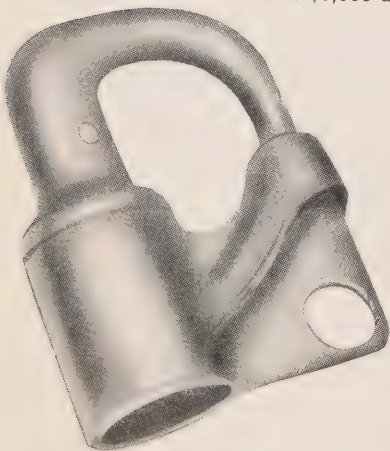
# Making Good Progress

**I**NAUGURATION of the Standards Committee in May, 1950, to standardize all material, equipment, and supplies purchased by the Commission has brought about many interesting and economical suggestions which have been adopted by the Commission.

(Full details of this important operation were embodied in an article published in the April, 1951, edition of *Ontario Hydro News*).

In its latest progress report, the Standards Committee states that a total of 2,075 items have been listed as standard since it began the work in 1950. During this period, 536 non-standard items have been eliminated and a total of 676 new items have been listed in Hydro's Standards Catalogue. In addition, 29 speci-

**SELECTED as standard item by committee, new type padlock is expected to save some \$5,000 a year.**



fications for standard equipment have been completed.

The problems encountered and investigations conducted by the Committee are strikingly illustrated by considering, as an example, the case of a padlock with an estimated turnover of 2,000 to 3,000 a year, where a saving of approximately \$5,000 may be attained on one standardized item.

For a number of years the Commission used a bronze padlock with a barrel-type warded key. During the winter months difficulty was experienced with water seeping into this lock and freezing. Certain other disadvantages inherent in this type of lock prompted the materials committee concerned to investigate the possibilities of developing a new design.

This committee, with all important data before it, decided to enlist the help of Canadian lock manufacturers with the objective of obtaining a padlock of similar design and material. The samples submitted were expensive. Specifications of a Commission design were submitted to the manufacturers, but this idea had to be discarded since the cost of retooling and purchase of new dies was excessively high. The only course that remained was to obtain a padlock of standard design.

Further investigation disclosed that a padlock, used extensively on railway switches, appeared to be the answer to the problem. Samples were obtained, and upon authority of the Director of Operations, these were issued to the Regions for appraisal. The approval was



**BRONZE PADLOCK with barrel-type warded key, formerly used by the Commission, had a turnover of about 2,000 to 3,000 per year.**

unanimous. Scrutiny of the padlock by the Security Division and Legal Department paved the way for completing the final adoption of the padlock.

A slight modification in design was requested; an alternative metal alloy base was rejected, but kept in mind for future use if a shortage of bronze should occur. The design, material, and cost were finally determined and the new padlock took its place as a Standard Stores Item.

Effecting substantial savings in time and money, as well as in the storage and supply of materials, this important work is continuing, month after month, toward the goal of complete standardization of all items.



Successful changeover operations on  
Wallaceburg district dairy farm typical  
of scenes being enacted in many  
rural areas of Southern Ontario's  
"25-cycle island" these days



# CONTENTED COWS

by Allan Jones



"JUDITH" looked completely the contented cow as the electric milker set to work, pulsating smoothly on 60-cycle power.

Wallaceburg district farmer C. V. Raymond nodded his head in satisfaction. The change from 25 to 60-cycle frequency in his milking machine was evidently not bothering one of the best of his 20 black-and-white Holstein cows. He also felt a certain satisfaction concerning electric milkers in general.

"You know," he said, "some cows will kick like a mule when they are hand-milked, but put an electric milker on them and they won't move at all."

It was an important day for Mr. Raymond because Ontario Hydro was changing over all the frequency sensitive electrical equipment on his farm. And, like most farmers these days, Mr. Raymond has a surprising number of these,

and numerous other electrical items serving him in the daily task of operating a farm.

## "Area G" Operation

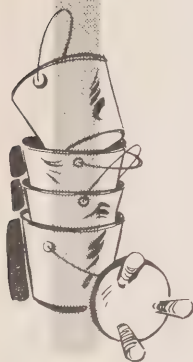
He was one of 44 different customers changed over in "Area G" that day, most of them farms situated in a low-lying area north of the pretty town of Wallaceburg, the "Glasstown" of Canada.

Farms are, of course, very important in Hydro's frequency standardization program. There are some 64,000 of them in Southern Ontario's "25-cycle island," and because of steadily increasing rural electrification, the task of altering farm equipment is a big item on changeover schedules.

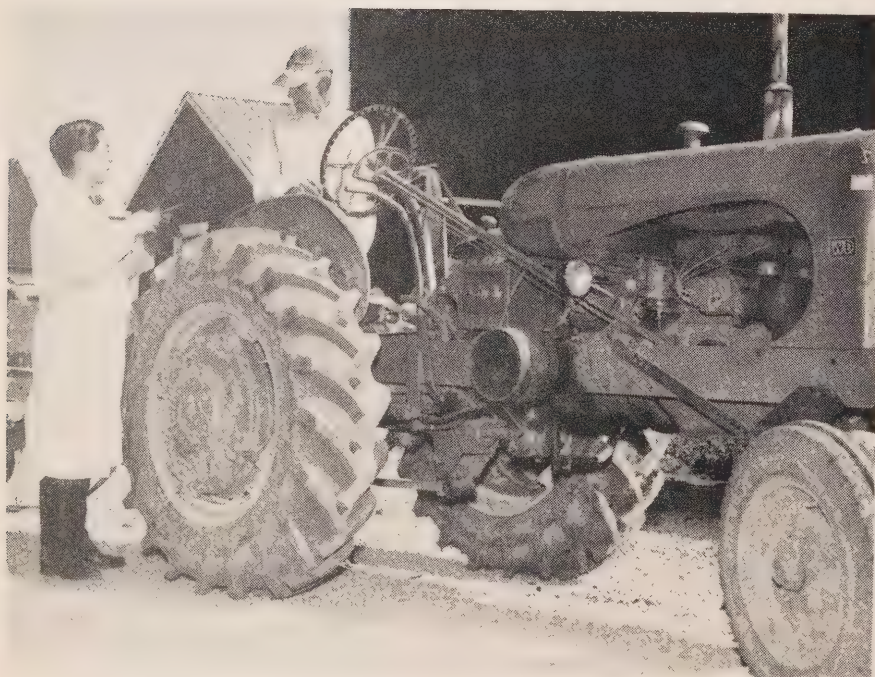
On his prosperous dairy farm, about five miles northeast of Wallaceburg, Mr. Raymond, a typically enterprising and industrious farmer, also grows wheat and raises chickens to supplement the receipts from his dairy produce. Even

*(Continued on page 20)*





WITH MR. RAYMOND as an interested spectator, Technician Glenn Thaler checks on milker after changeover to higher frequency. Judith took the whole affair very calmly indeed.



MR. RAYMOND who operates a successful dairy farm near Wallaceburg discusses details of "cutover" in his home and barn with Technician Karl Heslop.

Mrs. Raymond contributes to the family income, by teaching in the small rural public school nearby.

There is a lot of work involved on a dairy farm, even one as modest in size as Mr. Raymond's. Long ago, however, he learned the work-value of electricity as well as its potentialities for pleasure and relaxation when the day's chores are done.

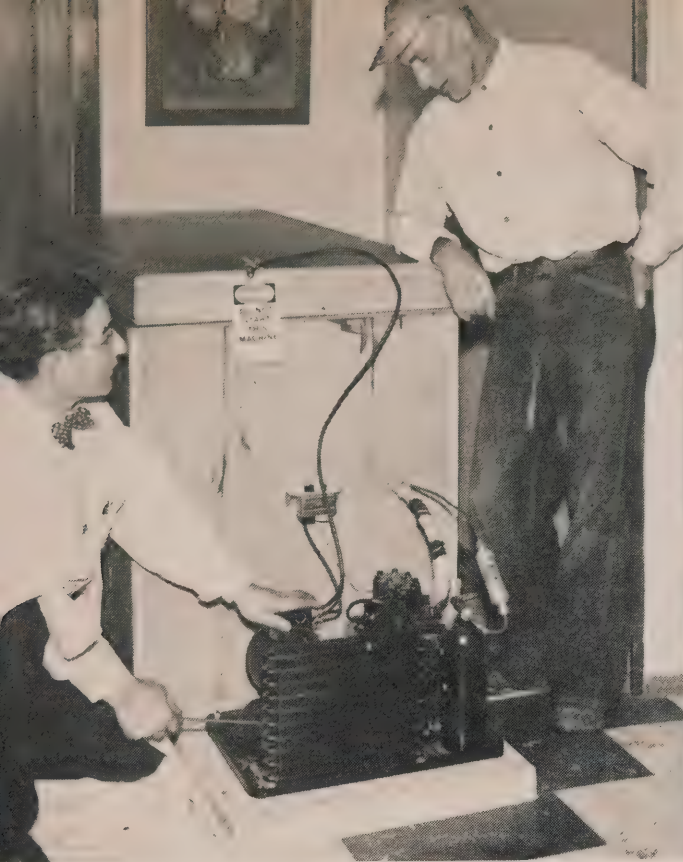
That the Raymond's is a modern farm is apparent even from a distance, for jutting from the peak of the neat red-and-white bungalow-type farmhouse is a television aerial. Other farms in this area are equally fortunate.

"There are about seven television sets within a mile or so of my place," says Mr. Raymond.

#### A Useful Ally

Here is what electricity does for him: It milks his cows, quickly and efficiently; pumps water for all purposes from a 90-foot well; operates the large cream separator, and keeps milk cold and fresh for the market. In the home it supplies light; does the weekly washing; cooks and keeps food; tells the time;





**P-FREEZER** built by Mr. Raymond needed a new motor for operation at 60 cycles. Here Karl Heslop is shown installing the new unit.



**CONCERNED** with changeover of household equipment, Lorne Dale and Hank Ross uncrate 60-cycle motor for refrigerator.

supplies ventilation, and provides an ever-ready source of relaxation through the mediums of television and radio.

Of the electrical servants on the Raymond farm, 12 were frequency sensitive, and typical of the kind usually encountered by Hydro technicians carrying out the rural phase of the big "Operation Changeover." They were the sump pump, the milker, milk cooler, separator, deep freeze, circulating pump, stoker, bench grinder, water pump, exhaust fan, washing machine, and refrigerator.

The smooth, efficient machinery of changeover on the Raymond farm had actually been set in motion some four months before when Hydro crews arrived to make a listing of every frequency sensitive item. Taken back to the well-stocked, changeover warehouses near Wallaceburg, this list was the basis for what followed.

From it, technicians were able to plot the full course of changeover on the Raymond premises. Knowing the make, the model, and other details concerning each 25-cycle item, they were able to complete the complex "behind-the-scenes" job of ordering, engineering,

and assembling the various new 60-cycle motors and other parts which would go into the Raymond equipment.

#### "Cut and Dried"

As a result of this careful planning, the job was more or less "cut and dried" when "C-Day" finally arrived, and even greater speed and efficiency was evident through the use of specialist changeover "teams."

Three of these "teams" were assigned to the Raymond farm operation. Technicians Harold Kennedy and Glenn Thaler were the first to arrive, shortly after 8 a.m., ready to handle the changeover of all items except refrigeration equipment and home appliances. By noon, this team had virtually finished work on such items as the water pump, the milker, the bench grinder, and the sump pump.

Hard on their heels was Karl Heslop, refrigeration specialist, who set to work altering Mr. Raymond's home-made deep freeze unit, and the all-important milk cooler in the barn.

Then, just as young Roger, 9-year old son of Mr. and Mrs. Raymond, arrived

home from school for lunch, Technicians Lorne Dale and Hank Ross appeared, ready to change over the washing machine and the refrigerator.

There were the normal problems which experience and know-how had made easy. Once the milker had been altered, for instance, the Kennedy-Thaler team had to make sure there was sufficient vacuum pressure with the milker operating at 60 rather than 25 cycles. Because the new and smaller 60-cycle motor would not fit exactly on the cream separator motor mounting, new holes had to be drilled for the new motor.

#### Challenges Not Obstacles

These were challenges, not stumbling blocks. By the end of the day, 60-cycle changeover on the Raymond farm had been completed with no serious hitches in Mr. Raymond's every-day routine, and;

Raymond, C.

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Cut 19,

the factual data on Hydro records heralding another customer "cutover" was filed away.



# HYDRO Home Forum

by Edithemma Dighton  
Hydro Home Economist



*Hello Again!* It is our sincere hope that this column proved interesting and beneficial to readers of *Ontario Hydro News* during 1952. Equally sincere is the hope that we'll be able to supply you with many useful household hints in the coming months.

*If you have used* a jar of pickled crab-apples or peaches, be sure to save the liquid and stir a tablespoon into a meat loaf mixture, or use to baste ham.

*When you invite Scottish friends* to your house for a Caledonia Day celebration, be sure to serve Scotch short-breads. These are rich, crumbly cookies: Sift  $\frac{1}{2}$  cup icing sugar and blend in 1 cup of creamed butter. Cream 1 cup of butter until plastic. Gradually add  $\frac{1}{2}$  cup sifted icing sugar. Add  $\frac{1}{2}$  tsp. vanilla. Then work in a sifted mix of 2 cups sifted pastry or rice flour,  $\frac{1}{4}$  tsp. salt and  $\frac{1}{4}$  tsp. baking powder. Do this using finger tips. Roll the dough to the thickness of  $\frac{1}{3}$  inch. Place on baking sheet and cut in squares. Bake in electric oven of 375 degrees, for 20 minutes.

*There's always a cheery word* when plain fare is served attractively. Use a ring mold frequently for fruits in jelly, Lemon Snow, or a custard trifle. You can also cook a meat loaf ring and fill with buttered carrots; prepare meat or salmon in tomato aspic, and pile the centre of the ring with greens. Oil the ring mold so that the mixture slips out in one piece.

*Have a heart* if your menus are getting monotonous. Beef, calf or lamb heart is good whether stuffed and baked, or as a pot roast, with the centre filled with diced onion and parsley, and slow-cooked with a variety of seasonings.

*Maybe you can't improve on peanut brittle*, but you can always try. Use sliced brazil nuts some time.

*Another dessert quickie:* To a cup of whipped cream, add a cup of nut brittle dusted with icing sugar and a cup of orange sections cut in pieces. Pile in sherbet glasses and chill well in electric refrigerator until ready to serve.

*Super!* Add  $\frac{1}{4}$  pint of oysters to a creamed, boiled or diced chicken casserole. Top with a layer of puff pastry.

*Pure as honey!* It's a fact that germs are not found in honey. This sweetener, with its individual aroma, has a taste appeal that adds much to breakfast, snacks, lunches and regular fare. Don't forget honey-cinnamon toast, honey biscuits, glazed honey squash, honey frosting, broiled grapefruit with honey, etc.

*When a man is let loose* in the kitchen

## Creamed Chicken and Ham

$\frac{3}{4}$  lb. cooked ham  
3 tbsps. flour  
 $1\frac{1}{2}$  cups milk  
3 cans condensed cream  
chicken soup, e.g. Heinz  
1 can drained mushrooms

Cut ham in cubes and place in strainer. Scald ham to remove saltiness, then drain. Heat 1 cup of the milk, meantime make a paste of 3 tbsps. flour with  $\frac{1}{2}$  cup cold milk then stir into the hot. Cook to boiling point, stirring constantly. Add ham and mushrooms. Remove from heat and serve over plain waffles.

he is likely to choose a macaroni or spaghetti dish as his specialty. Leave a couple of cans of spaghetti with tomato sauce at the front of the shelf and you'll find it served with a new flavor twist. These dishes may be served with browned mushrooms or herb sauces, chives or onions, anchovies or tuna, meat balls or canned peas.

*Since apple trees* were planted as early as 1633 in Canada, the apple industry has become a very important one. The fragrance and flavor of our apples tempt us to eat more than an apple a day.

*If you don't know beans . . .* remember your ancestors thrived on a savory dish of baked navy beans every Saturday night, as a general rule. Today you can pour a tin of baked beans into a casserole, then combine 2 tablespoons molasses, 1 tablespoon brown sugar, 4 tablespoons catsup,  $\frac{1}{2}$  teaspoon dry mustard and  $\frac{1}{2}$  cup cooked bacon pieces and mix into beans. Heat until piping hot.

*Glad some sight* after a cold trip home is a platter of pork and beans surrounded by grilled cheese sandwiches. Let the family help themselves to this, plus crisp celery and carrot sticks. Pass brownies and apples. Serve piping hot coffee.

*Another gift* for the home is a new electric lamp with a three-way socket.

*Flavor of popcorn balls* can be improved by using coffee. Quantities are 1 cup molasses, 1 cup corn syrup, 3 tbsps. butter, 1 tbsp. concentrated coffee powder, 1 tbsp. vinegar, and  $\frac{1}{2}$  tsp. salt for 3 qts. popped corn. Stir as the mix cooks, until temperature is 240 degrees, then pour over corn.

*We had almost forgotten:* filet mignon is tenderloin that is 2 inches thick.



# F. J. LONG HEADS INSPECTORS

**F. J. LONG**, Electrical Inspection Superintendent, Georgian Bay Region, was elected Chairman of the Ontario Chapter, Western Section, International Association of Electrical Inspectors at its fourth annual meeting held recently at the King Edward Hotel.

Inspectors from many parts of the province as well as representatives of Underwriters' Laboratories of Canada, the Canadian Standards Association, and electrical manufacturers filled the meeting hall. A large number of manufacturers had electrical displays in the exhibit room, and these were inspected with considerable interest.

Among the interesting papers presented were:—"Aluminum Sheathed Cables" by P. J. Croft, Chief Engineer, Canada Wire and Cable Co. Ltd., and "Wiring Devices" by F. R. Jeffery, Sales and Development Engineer, Crouse-Hinds Co. of Canada Ltd.

A report was given on the activities



**RETIRING CHAIRMAN, H. J. McCaw, right, presents gavel to Ontario Chapter, Western Section, Int'l. Assoc. of Electrical Inspectors, which is accepted by the incoming Chairman, F. J. Long.**

of the Approvals Laboratories, Division of Canadian Standards Association, by Gerry Moes, Director. The progress and general policies of Underwriters' Laboratories of Canada were outlined by E. F. Tabisz, General Manager. L. R. McKim, Electrical Inspection Superintendent, West Central Region, led a panel discussion on "Troubles in the Field."

Other executive members elected for 1953 were: Honorary Chairman, A. G. Hall, retired Chief Electrical Inspector, Ontario Hydro; Past Chairman, H. J.

McCaw, Sales Control Officer, Ontario Hydro Inspection Dept.; 1st Vice-Chairman, R. K. Tumelty, Northwestern Region; 2nd Vice-Chairman, Leonard Tearne, Toronto Hydro-Elec. System; Secretary, J. J. Donnelly, and Treasurer, N. A. Cockburn, both of Canadian Standards Association; Executive Officers, F. R. Jeffery, Crouse-Hinds Co. of Canada Ltd., and E. J. McDougall, Square D. Co. of Canada Ltd.; Membership Officer, E. L. Coomber, Ontario Hydro, and Don Marr, Publicity Officer, Marr Machine Mfg. Co. Ltd.

**MEMBERS** of the 1953 executive. Seated, left to right, J. J. Cleaver and H. J. McCaw, Past Chairman; F. J. Long, Chairman; J. J. Donnelly, Secretary, and A. G. Hall, Honorary Chairman. Standing, left to right, Leonard Tearne, 2nd Vice-Chairman; V. B. Wailes, F. R. Jeffery

and E. J. McDougall, Executive officers; F. R. Whatmough, N. A. Cockburn, Treasurer; E. W. McLeod, Past Chairman; D. P. Marr, Publicity Officer; R. K. Tumelty, 1st Vice-Chairman, and A. E. Wilson. Meeting was attended by inspectors and others from many parts of Ontario.





# ONTARIO HYDRO NEWS INDEX

1952

## A

	ISSUE
A Year In Review	January
A Beloved Monarch	February
Ad Astra	February
Aerial Cable, Greater Interest In	March
Appoint Chief Statistician (W. S. Preston)	April
Appoint Rates Study Engineer (A. W. Murdock)	May
Ashworth, E. M. Honored (Toronto)	May
An Important Decision	June-July
Another Link in a Long Chain	June-July
Ambuhl, F. F., Toronto (Obituary)	June-July
Area "D" Changeover Completed	August
A Long, Far Cry	August
Advance Changeover Dates	December

### ASSOCIATION OF PROFESSIONAL ENGINEERS

Elected Council Members	January
The Amazing Game of "Nim"	February

### ASSOCIATION OF MUNICIPAL ELECTRICAL UTILITIES

Growing Hydro Systems Present Problems	March
Commends Rates Engineer Appointment (M. W. Rogers)	March
R. H. Martindale Heads A.M.E.U.	March
Municipal Standards Conference	August
Sound Investment	August
Service Stressed	December
A. E. Fort Heads A.M.E.U. Group	December
Niagara Meter Group	December

## B

Buchanan, E. V. Retires	January
Bulbs (The Story of Two Bulbs)	January
Banks, E. H. (Should Maintain Running Estimate)	March
Brown, Hon. Gay H. (Mutual Trust)	March
Big Saving (Dual Frequency Equip.-F.S.)	May
Blessed Event	August
Beck, Sir Adam (In Memoriam)	September
Big Five (New Furnace—North American Cyanamid)	September

## C

Cliff, D. P. (O.M.E.A. Pledges Support)	March
Commends Rates Engineer Appointment (M. W. Rogers)	March
Centralia Changeover (F.S.)	March
Curtain Going Up (Toronto Subway)	May
Chatham Surplus	May
Chatham's New Home	June-July
Central Ont. Metermen's Assoc. (Discuss Power Factor)	August
Cliff, D. P., Named Secretary-Treasurer	August
Christmas Seal, Romance of the	December
"Close-up" View (Thunder Bay-District 5 O.M.E.A.)	December

### CANADIAN NATIONAL EXHIBITION

Hydro Building C.N.E. Feature	May
Open New Hydro Building at the C.N.E.	August
Hydro on Parade at the C.N.E.	August

### CANADA

Continuing Expansion	January
The Impetus of Power	April

### CHALLIES, HON. GEORGE H.

Presents Portrait	September
-------------------	-----------



D	ISSUE
District 5 O.M.E.A. Meeting .....	February
Debate Power of Election (O.M.E.A.) .....	March
Dean, G. F. (Inherent Obligation) .....	March
Denman, M. R. (Toronto Hydro Appointments) .....	March
Down by the Old St. Lawrence (Morrisburg Station) .....	April
Dual Frequency Equipment (Big Saving—F.S.) .....	May
District 5 O.M.E.A. Meeting .....	June-July
Discuss Power Factor (Cent. Ont. Metermen's Assoc.) .....	August
Dresden .....	September
Diplomat, Acrobat and Handyman .....	October-November
DEMANDS	
A Year In Review .....	January
E	
Electronic Computer (The Amazing Game of "Nim") .....	February
Estimate, Should Maintain Running (E. H. Banks) .....	March
Every 72 Hours .....	June-July
Example of Success (St. Thomas P.U.C.) .....	August
Engineering Scholarships (Dean Tupper Article) .....	October-November
Elected to Varsity Senate (Dr. Holden—J. J. Traill) .....	December
ELECTRIC SERVICE LEAGUE OF ONTARIO	
(Stewart Heads League) .....	January
F	
Furanna, A. L. (E. V. Buchanan Retires) .....	January
Fraser, G. M. (E. V. Buchanan Retires) .....	January
Ferranti, Sir Vincent de, .....	January
Frid, H. B., Hamilton .....	January
Fisher, John (Pat on the Back) .....	March
Forbare, L. P. (Toronto Hydro Appointments) .....	March
Foreman's Sock Goes for a Ride .....	April
From all the Four Corners of the Earth (I.R.C. Niagara Visit) .....	August
Farquharson, A. L. (Obituary) .....	September
Fort William's Diamond Jubilee .....	September
Feather In Preston's Cap .....	December
First Breakthrough (Niagara Tunnel) .....	December
Fort, A. E. (Heads A.M.E.U. Group) .....	December
FINANCIAL	
A Year In Review .....	January
FREQUENCY STANDARDIZATION	
Ad Astra! .....	February
Centralia Changeover .....	March
Substantial Progress .....	March
Sambo Gets 60-cycle Service .....	March
"We Hardly Knew They'd Been There" .....	April
Pioneer Mill .....	April
Big Saving (Dual Freq. Equip.) .....	May
Industrial Deduction .....	June-July
Gratifying and Significant .....	August
Area "D" Changeover Completed .....	August
Mobile Information Bureau .....	September
Tunnel Job .....	September
250,000 Customers .....	December
Advance Changeover Dates .....	December
G	
Grover, B. W. (E. V. Buchanan Retires) .....	January
Gagen, T. A. (E. V. Buchanan Retires) .....	January
Growing Hydro Systems Present Problems .....	March
Georgetown Men Honored .....	March
Green, Harold (Harrow Manager Honored) .....	March
Greater Interest in Aerial Cable (G. H. Gallimore) .....	March
Good Job (Leg. Comm. on Government Commissions) .....	April
Graham, Bernard M. (Named Mgr. North Bay Hydro) .....	April
Greenwood, Chalmers, Stratford (Hydro Pioneer) .....	June-July
Grand Valley Metermen's Assoc. (Metermen Name Officers) .....	June-July
Gratifying and Significant (F.S.) .....	August
Good News for Thunder Bay (Dist. 3 O.M.E.A.) .....	October-November
Georgian Bay Expands (Georgian Bay O.M.E.A.) .....	October-November



## H

	ISSUE
Honor Veteran Managers (Harold Foote—H. H. Knoll) .....	February
Harrow Manager Honored (Harold Green) .....	March
Hyde, Harry (Toronto Hydro Appointments) .....	March
How Do You Do! .....	April
Honor Rex Martindale .....	May
Hydro Building (C.N.E.) .....	May
Hydro Pioneer (Chalmers Greenwood, Stratford) .....	June-July
Hearn, Dr. Richard L. (Honoris Causa) .....	June-July
Hydro News (Ten Years Ago and Now) .....	September
Holden, Dr. Otto (Elected to Varsity Senate) .....	December

### HEARN, RICHARD L. GENERATING STATION

A Year in Review .....	January
------------------------	---------

### HOLDEN, OTTO, GENERATING STATION

A Year in Review .....	January
------------------------	---------

### HYDRO HOME FORUM

Stuffed Veal Shoulder .....	January
Waffles and Pancakes .....	February
General Column .....	March
Glory Cake .....	April
Ice Cream Sandwiches .....	May
Cherry Cream Pie .....	June-July
Watermelon Pickle .....	August
Baked Beans .....	September
Mocha Walnut Pudding .....	October-November
Cocoanut Coffee Fudge .....	December

### HYDRO SCHOLARSHIPS

Establish Hydro Scholarships .....	May
Wins Scholarship .....	June-July
Engineering Scholarships .....	October-November

## I

Improved Power Situation .....	February
Impressive and Significant Achievement .....	March
Inherent Obligation (G. F. Dean, Toronto) .....	March
Impetus of Power, The (Industrial Canada) .....	April
I Wish I'd Said That .....	May
International Red Cross (From all the Four Corners) .....	August
I Wish I'd Said That .....	August
Illuminometer (Taking Old Sol's Measure) .....	October-November
International Plowing Match .....	December

## J

Join Quarter Century Ranks .....	May
----------------------------------	-----

## K

Kitchener (Symbol of Progress) .....	January
King George VI (A Beloved Monarch) .....	February
Knoll, H. H., Port Colborne (Honor Veteran Commissioners) .....	February
Kidd, J. A. I. (Efficient Means) .....	March

### KEITH, J. CLARK, GENERATING STATION

A Year in Review .....	January
------------------------	---------

## L

Linn, John F., Stayner (Obituary) .....	February
Leeming, H. H. (Substantial Progress) .....	March
Little, H. B. (Toronto Hydro Appointments) .....	March
Lightning Protection (Efficient Means) .....	March
Legislative Committee on Government Commissions (Good Job) .....	April
Lighting Winners .....	August



## M

## ISSUE

Matthews, Gordon S., Peterborough	January
Murdoch, A. W., Ont. Hydro	January
Montague, J. R., Ont. Hydro	January
Martindale, Rex. (50th Anniversary)	March
(Elected A.M.E.U. President)	March
(Honor Rex Martindale)	April
Municipalities Exhorted to Support Red Seal	March
Moffitt, D. G. (Toronto Hydro Appointment)	March
Mutual Trust (Hon. Gay H. Brown)	March
Metermen Discuss Formation of Main Council	March
Moving Day Ahead	April
Murdoch, A. W., Ont. Hydro, (Appoint Rates Study Eng.)	May
Marshall, William, Orangeville (Obituary)	June-July
Metermen Name Officers (Grand Valley Assoc.)	June-July
Municipal Standards Conference (A.M.E.U.)	August
Meter Council	August
Mobile Information Trailer	September
Meterman (Diplomat, Acrobat & Handyman)	October-November
McClymont Heads Western Metermen	December

## MUNICIPAL

Kitchener P.U.C. (Symbol of Progress)	January
Blenheim P.U.C. (Betterment Program)	February
Municipal H.E. Pension Plan (New Pension Benefits)	March
Toronto Hydro Appointments	March
Morrisburg Generating Station (Down by Old St. Lawrence)	April
Bronte Joins the Family	April
Toronto Hydro Light and Current News (How Do You Do!)	April
Scarborough P.U.C. (Moving Day Ahead)	April
Waterloo (F.S.—Pioneer Mill)	April
Stratford P.U.C. (Join Quarter Century Ranks)	May
Chatham P.U.C. (Chatham's New Home)	June-July
Stouffville H.E.C. (Stouffville Favors P.U.C.)	June-July
Stratford P.U.C. (Hydro Pioneer)	June-July
Toronto H.E.S. (Toronto Surplus)	June-July
Cobourg P.U.C. (Cobourg Profit)	June-July
Preston P.U.C. (Preston Expands)	June-July
Chatham P.U.C. (Long Service Records)	June-July
Etobicoke H.E.C. (Etobicoke Expansion)	June-July
Thorold P.U.C. (Improve Facilities)	June-July
St. Thomas P.U.C. (Example of Success)	August
Toronto Township H.E.C. (Scenic Substation)	August
Watford P.U.C. (Progressive Municipality)	August
Ottawa Hydro (Plans Stabilization Fund)	August
Scarboro P.U.C. (Cornerstone Photo)	August
Dresden H.E.C. (Dresden)	September
Fort William's Diamond Jubilee	September
Feather in Preston's Cap	December
McMordie R. C., Ontario Hydro	January
MacPhail, Andrew, M., Uxbridge (Obituary)	January
McMann, Claude L., Sarnia (Retirement)	April

## N

New Pension Benefits	March
Not an Idle Boast (Ontario)	May
N.O.M.A. Officers	June-July
North American Cyanamid Ltd. (Big Five)	September
Not an Accomplished Fact Yet (St. Lawrence)	October-November
Notable Record (Review of Hydro Operations—1952)	December
Niagara Meter Group	December

## O

Operating Analysis (Ray Pfaff)	March
Otto Holden Generating Station (Another Link)	June-July
Open New Hydro Building at the C.N.E.	August

## ONTARIO

Continuing Expansion	January
Not an Idle Boast	May



# ONTARIO MUNICIPAL ELECTRIC ASSOCIATION

# ISSUE

District 4 (Security of Service)	February
District 8 (Improved Power Situation)	February
District 5 O.M.E.A. Meeting	February
O.M.E.A. Pledges Support (D. P. Cliff)	March
Debate Power of Election	March
F. H. Plant Elected O.M.E.A. President	March
Sympathy and "Loving Loyalty"	March
District 5 O.M.E.A. Meeting	June-July
D. P. Cliff Named Secretary-Treasurer	August
District 3 (Good News for Thunder Bay)	October-November
Georgian Bay (Georgian Bay Expands)	October-November
E.O.M.E.A. (Public Relations Important)	October-November
District 6 (Prophetic Statement)	December
"Close-up" View (Thunder Bay—District 5)	December
O.M.E.A. President Dies Suddenly	December

## P

Poles (Tarred and Weathered)	January
Pat on the Back (John Fisher)	March
Pension, New Benefits (Municipal)	March
Plant, F. H. (Elected O.M.E.A. President)	March
Pfaff, Ray (Operating Analysis)	March
Pine Portage G.S. (Third Unit)	April
Pioneer Mill (F.S.—Waterloo)	April
Preston, Walter S. (Appoint Chief Statistician)	April
Power Leviathan (Niagara Project)	May
Page, Inspector Vernon (Every 72 Hours)	June-July
Progressive Municipality (Watford P.U.C.)	August
Public Relations Important (E.O.M.E.A.)	October-November
Pacific Project (Lewis River Project—Pacific Power & Light Co.)	October-November
Prophetic Statement (District 6 O.M.E.A. Meeting)	December
Plant, F. H. (Obituary)	December

## POWER RESOURCES

Continuing Expansion	January
Security of Service (Dist. 4 O.M.E.A.)	February
Third Unit (Pine Portage G.S.)	April

## POWER SITUATION

Improved Power Situation (Dist. 4 O.M.E.A.)	February
---	----------

## R

R.O.A. Managers' Meeting	February
Reunion at Niagara	February
Rogers, M. W. (Commends Rates Engineer)	March
Red Seal, Municipalities Exhorted to Support	March
Rural (Simcoe Submarine)	June-July
Reid, Loftus H., Toronto (Presentation)	June-July
Review of 1952 Hydro Operations (Notable Record)	December
Romance of T.B. Christmas Seal	December

## RATES

The Facts About the Rate Increase (Chairman's Address)	October-November
Good News for Thunder Bay	October-November

## RESEARCH

Tarred and Weathered	January
The Story of Two Bulbs	February

## RURAL

A Year in Review	January
R.O.A. Managers' Meeting	February
A Long Far Cry	September

## S

Symbol of Progress	January
Sherk, Jason, Humberstone	January
Schwenger, C. E., Toronto (Obituary)	January
Security of Service (Dist. 4 O.M.E.A.)	February



	ISSUE
Spring Thoughts	March
Should Maintain Running Estimate (E. H. Banks)	March
Skene, Alex. H. (Sudbury Power Dean Passes)	March
Substantial Progress (F.S.)	March
Sympathy and Loving Loyalty (O.M.E.A. Resolution)	March
Sambo Gets 60-Cycle Service (F.S.)	March
Smith, Alonzo T. (St. Catharines)	April
Simcoe Submarine (Rural)	June-July
Swan Song Now Glad Whooping	August
Scarboro P.U.C. Quarter Century Club (312 Years' Service)	August
Scenic Substation (Toronto Twp. H.E.C.)	August
Sound Investment (A.M.E.U.)	August
Smith, R. J., Perth, Honored	August
Sandiford, Dr. P. J. (Obtain Ph.D. Degree)	September
Sweden's "First"	December
Service Stressed (Western A.M.E.U. Conference)	December

#### STRIKE, W. ROSS, Q.C.

St. Lawrence Vital to Nation's Progress	March
Sound Investment	August
Service Stressed	December

#### SAUNDERS, CHAIRMAN ROBERT H.

Impressive and Significant Achievement	March
The Facts About the Rate Increase	October-November

#### ST. LAWRENCE SEAWAY AND POWER PROJECT

St. Lawrence Vital to Nation's Progress (W. R. Strike)	March
Not an Accomplished Fact Yet	October-November

#### SIR ADAM BECK NO. 2 PROJECT

A Year in Review	January
Tour Niagara Project	April
Power Leviathan	May
An Important Decision	July-August
First Breakthrough	December
"Close-up" View	December

### T

Tarred and Weathered	January
This and That	February
The Amazing Game of "Nim"	February
Toronto Hydro Quarter Century Club (13,000 Years' Service)	February
The Story of Two Bulbs	February
Tait, William, Picton (Obituary)	March
Toronto Hydro Appointments	March
Tour Niagara Project	April
Third Unit (Pine Portage G.S.)	April
Toronto Electric Club Officers	April
Toronto Subway (Curtain Going Up)	May
Ten Years Ago and Now	September
Taking Old Sol's Measure (Illuminometer)	October-November
Traill, J. J. (Elected to Varsity Senate)	December

#### TRANSMISSION LINES

A Year in Review	January
------------------	---------

### W

Weese, Walter S., Dresden (Obituary)	February
"We Hardly Knew They'd Been There" (F.S.D.)	April
Windsor School, Unique (F.S.D.)	April

### Y

Year in Review	January
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DOWN ON THE "OLE" MISSISSIPPI



ONTARIO HYDRO

# *News*



CONVENTION ISSUE



# ONTARIO HYDRO *News*

FEBRUARY-MARCH, 1953 Vol. 40, Nos. 2 & 3

Published by

THE HYDRO-ELECTRIC POWER COMMISSION

OF ONTARIO

620 UNIVERSITY AVENUE, TORONTO



## "POWERFUL" ALLY

A STRIKING example of the influence exerted by electricity on practically every sphere of Canadian activity was cited recently by J. H. Smith, newly-elected President of the Association of Professional Engineers of Ontario in addressing the Electric Club of Toronto.

According to press reports of Mr. Smith's address, this prominent young engineer told his audience that the equivalent of the strength of an army division is added to the defense of Canada every time forty, 25-horsepower motors are installed.

This interesting fact serves to emphasize the far-reaching importance of Canada's development of her electrical resources. The annual survey of the Canadian Department of Resources and Development reveals that a new high was established by this country last year when a total of 1,064,000 horsepower of new hydraulic capacity was brought into operation. However, due to dismantling of old plants and adjustments, the net increase was 971,726 hp. The survey also reveals that the installed capacity of the nation's hydraulic plants reached a total of 14,034,230 hp.

While total production of electrical power was approximately eight percent above 1951, the survey indicates that "little reserve capacity was available" to meet mounting industrial and domestic demands.

This is particularly true insofar as Ontario's present power position is concerned. In a recent address, Chairman Robert H. Saunders pointed out the fact that Ontario Hydro had increased its dependable peak capacity by approximately 73.1 percent since 1945. By the end of 1956, the Commission's dependable peak capacity will have increased approximately 124 percent over that of 1945. But, even with this phenomenal increase in power production facilities, Ontario is at the crossroads, to use Mr. Saunders' own words.

Authority must be received this year to proceed with St. Lawrence Seaway and Power Project or more fuel-electric stations will be necessary to avert a deficiency in power resources by 1957.

Only by a continuous, and in the case of Ontario, by an accelerated expansion of its electrical production, can Canada maintain the enviable position she now occupies in world affairs.

Mr. Smith, in his address to the Electric Club, echoed this feeling when he said: "Since the manpower resources of Canada are likely to increase only 20 percent during the next decade, the only method of increasing the national output and maintaining the Canadian standard of living lies in the greater use of electricity."



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## CONTENTS

	Page
Impressive Achievement .....	2
Canada's Proud Record .....	8
Challenging Problems .....	18
Golden Anniversary .....	19
Spirited Debates .....	22
Pension Plan Gains Ground .....	26
Paper Deluge .....	27
Successful Year .....	28
President's Report .....	30
Annexation Procedures .....	32
Protracted Battle .....	33
Great Tasks .....	35
Membership Growing .....	36
Mattawa Joins Hydro Family .....	37
Venerable Status .....	38
Honored by E.I.C. ....	40
Convention Caricatures .....	42
Welcome Challenge .....	44
Co-operation—Golden Key .....	45
Convention Candidats .....	46
Good Response .....	48
Increased Support Urged .....	51
Voltage Dips .....	51
Presentations .....	52
Cresote Best Preservative .....	53
Promote Canadian Atmosphere .....	53
Around Hydro Circuit .....	54
Foto-News .....	56





*Winter scene at Ragged Falls on the Oxtongue River, Muskoka.*

—Ontario Department of Travel and Publicity photo





# A Year of

*(On February 24, 1953, Mr. Saunders, presented his fifth consecutive report to representatives of the Ontario Municipal Electric Association and the Association of Municipal Electrical Utilities at the 44th joint annual convention of these organizations in Toronto, February 23-25. In view of the widespread interest manifested in this address, a digest of the report is reprinted herewith.—Editor).*

Mr. Presidents, officers and members of the Association of Municipal Electrical Utilities and the Ontario Municipal Electric Association.

For the fifth time, it is my privilege to report to you on my stewardship as Hydro Chairman and on the affairs and progress of our Commission during the past year. The year 1952 marked Ontario Hydro's 42nd year of active service to the people of Ontario.

At the outset, may I extend my sincere thanks and the sincere thanks of my colleagues, the management and staff of our Commission, to you all for the wonderful co-operation extended to us during the year. It is our sincere hope that our future actions will merit the same support and co-operation in the months and years that lie ahead.

A review of our activities will show that 1952 was another year of impressive and highly significant achievement, achievement of which we, who are privileged to serve Hydro, can justly be proud.

In December, 1952, the dependable peak capacity of all our resources was 4,495,100 horsepower, an increase over that of the previous year of 551,700 horsepower or 14.0 percent; an increase, since my report on the December 1948 peak capacity of 1,591,900 horsepower or 54.8 percent.

Upon completion of the presently authorized power development program in 1956, the December's total dependable peak capacity of all resources is estimated at 5,807,600 horsepower, an increase of 1,312,500 horsepower or 29.2 percent over that of December, 1952. We trust that this increase of 1,312,500 horsepower for the people of this Province will protect the expanding economy of the Province until the end of 1956 or the first part of 1957.

To protect our people late in 1957 and the future, we have pressed for the right to develop the power resources in the International Section of the St. Lawrence. The year 1952 saw the Canadian Government press for action, resulting in both Canada and the United States making application to the International Joint Commission for the right to have two entities, one named by each, construct the power project. On October



## **HYDRO CHAIRMAN ROBERT H. SAUNDERS ANNOUNCES \$1,879,780.54 REFUND TO ONTARIO MUNICIPALITIES**

# **Impressive Achievement**

29, 1952, the International Joint Commission gave its approval to these applications. Canada has already named your Ontario Hydro as its entity, we only await the naming of the United States' entity to get started on construction. We must press and continue to press for the right to develop the resources of this great river.

It is not my intention to go into details on all operations of your Ontario system.

There are, however, two subjects which I am going to discuss with you at this time:

1. Rates, and
2. Frequency Standardization Costs.

### **RATES**

In my last report, delivered to you on February 26th, 1952, I stated that we did not anticipate that a general increase in rates would be necessary for the year 1952. Experience has borne out this prediction.

Ladies and gentlemen, we were able to hold the rate for 1952 and the use of steam continued to increase. In fact in the functional cost of power for 1952, steam accounts for: In the Niagara Division \$2.50 per kilowatt as compared with 29 cents in 1951.

In the Eastern Ontario Division \$2.41 per kilowatt as compared with 28 cents in 1951.

In the Georgian Bay Division \$2.35 per kilowatt as compared with 28 cents in 1951.

The load did continue to grow forcing a greater use of steam power even for basic load. In fact, in January of this year we used 37,354,000 pounds (18,677 tons) of coal at the Richard L. Hearn plant to generate 36,651,000 kilowatthours of electrical energy and at the J. Clark Keith plant 21,926,000 pounds (10,963 tons) to generate 20,689,600 kilowatthours. This increased use, which promises to continue during 1953, forced a rate increase which was predicted in my radio addresses of June 13, June 23, and September 1, and announced in a provincial-wide broadcast on October 29, 1952, the increase being an average of 14.8 percent. In my October 29th report I advised that rural rates would also be increased. A full report was given on these rates in my radio address on December 9, 1952.

Let me now deal with a matter of importance to you the municipalities in connection with rates and the cost of power—Refunds or Debit adjustments.

It is a matter of some regret that due to the higher cost of power in 1952 the refund will not be as great as one year ago. However, there is satisfaction in being able to announce that a net total of \$1,879,780.54 in refunds is being paid—\$1,802,170.77 in Southern Ontario; \$77,609.77 in Thunder Bay.

Looking at the Southern Ontario System I find that:  
**Niagara Municipalities**—of 179, a total of 140 will receive refunds totalling \$1,056,056.82.

**Eastern Ontario Municipalities**—all 69 will receive refunds totalling \$733,234.62.

**Georgian Bay Municipalities**—of 65, a total of 61 will receive refunds totalling \$117,909.99.

**In the Thunder Bay System**—all six municipalities will receive refunds totalling \$77,609.77.

### **FREQUENCY STANDARDIZATION COSTS**

My policy has been, and always will be, to be perfectly frank with you—the municipalities—and the people of this Province. One year ago, when I was reporting to you, I warned of certain conditions regarding the cost of frequency standardization.

Let me repeat one sentence from my 1952 report:

“It is obvious to all that the increased power demands will increase the amount of standardization over the original estimate.”

The cost of the program, as we know it today, will be substantially higher than the cost of the program as we knew it in 1948, when it was endorsed by your associations on the 21st day of June.

Yes, ladies and gentlemen of the O.M.E.A. and A.M.E.U., the cost will be substantially higher because of three elements: the increase in cost of material and labor; the tremendous industrialization, and the very substantial increase in population bringing with it an increase in the number of customers to be converted and, of course, a very much higher standard of living enjoyed by our people which is reflected in the increased use of frequency-sensitive appliances in the homes, both city and country, and around the farms.

This program, for the reasons mentioned above, has cost already a tremendous amount. The net expenditure up to the end of 1952 on the frequency standardization of rural distribution amounted to \$517,032, all of which has already been recovered out of rural rates. We spent, up to the end of 1952, a total of \$104,454,871 on completed conversion work of customers and certain of Ontario Hydro's supply facilities, and an additional \$24,964,938 on equipment and materials for future conversion work.

The amount spent on frequency standardization, to the end of 1952, has been financed internally by the Commission and to date no outside borrowings have been found necessary to carry the program.

Looking into the future of conversion, I have, on many

*(Continued on next page)*



occasions during the past weeks, been asked for my estimate of the total cost.

I am not prepared to answer that question today, and will not be prepared until I am satisfied that the information at my disposal enables me to give the people of this Province a reliable answer and not merely guesswork on my own part or on the part of any other person or official.

The firm of Stone and Webster are still working on this report. We have had several meetings during the last few days with the object in view of giving to this meeting an estimate as to the future. The study in itself is truly a very difficult one and a study which makes it extremely difficult to forecast the future.

We at Hydro are not satisfied that the information obtainable to date enables us to forecast the future cost with the degree of reliability that we would desire, and, therefore, I repeat I am not prepared to give you the future estimate today. But you can be assured that as soon as possible we shall present the whole matter to the executives.

Let me review the situation. We can, of course, give you a resumé of our experience to date, but forecasting the future is a tremendous problem and one that presents many, many difficulties.

We can make a guess as to the increase in the cost of labor and material but, mark you, it would be a guess, and I emphasize that point, and probably an unreliable guess when you try forecasting over a period of 8 to 10 years. Let us realize the tremendous difficulties involved in attempting to forecast the number of customers who will be served during the next 8 to 10 years. Truly, an unknown number and a number depending upon factors over which Hydro, the municipalities or the Provincial Government have no control. At the moment, I think, for example, of the disastrous floods which took place just recently in Britain and Europe. We cannot say how many of these good folk will come to Canada and settle in Ontario. I hope they will come, God bless them, but that is an example of an unknown factor—a factor over which we have no control.

Also, let us realize the tremendous difficulties involved in estimating the saturation of frequency-sensitive appliances in our homes. That depends almost entirely on the prosperity of our people over the next 8 or 10 years—matters, of course, over which we have no control. Let us realize the difficulties involved in attempting to forecast the cost of changing over the actual appliances—appliances whose designs are changed by the manufacturers every year or so. It would be impossible to immediately purchase the units that would be required for future use over this 8- to 10-year period. Even over the past 4½ years, since we started this program, many changes have been made in design and in type.

No, my friends, there are so many contributing factors over which we have no control that make a reliable prognosis almost impossible.

Occasionally on vast projects involving millions of dollars in expenditures, fundamentals are lost sight of. Therefore, let us look back to the beginning. It was in 1948 when an estimated cost was determined, based on the economy of Ontario in 1947, as related to frequency changeover.

We were informed that the undertaking would span a period of 15 to 16 years—in other words we anticipate work would be completed in or about 1963. Fifteen years is a long time. Many changes can and generally do take place in this span.

To those of us who enjoy the opportunities and life in this great province, has there ever been or will there ever be a more important period of time than from 1948 to 1963?

My friends, this is a period of unprecedented industrial expansion, of increasing population, of growing prosperity—a period in which our people are enjoying more and more of the blessings and benefits of electrical living. Today, we enjoy a standard of living unsurpassed anywhere in the world and we are still going forward to new horizons of attainment and achievement. Yet it is during this period of tremendous and ever-accelerating progress when we are trying to estimate the probable cost of such an extensive program, with only four years behind us.

Let us think of what has been happening. I am sure that many of you folks here today are familiar with that forty-mile stretch of highway—along the Queen Elizabeth Way—between Toronto and Hamilton. Have you noticed the truly dramatic transition which is taking place along that great highway. Farm lands and rural communities are disappearing.

We can be very proud of the wonderful period of expansion which we are enjoying in Ontario. But, as I have said, it does present tremendous problems to Hydro. Let me take the case of the Toronto Township Hydro-Electric Commission as a case in point. Just recently we studied some of the problems which faced that commission and discovered that in 1947 they had 377 new customers added to their system. In 1948 they had 447 new customers; in 1949, 535 new customers; in 1950, 775 new customers; in 1951, 786, and in 1952, 1,340 new customers. Expansion of this nature must, of necessity, change the plans of any public utility.

Remember, always, when you see new homes, that generally speaking, they have electrical appliances and equipment. Most of them have washing machines, refrigerators, stoves with timing devices, oil burners, clocks, fans and other frequency-sensitive items all of which must be changed over. Most of these appliances are in every new house you see today—thousands and thousands, yes, millions of items which require conversion from 25- to 60-cycle.

This represents expansion beyond the fondest dream of 1947 or 1948, but expansion that changes the whole complexion of the frequency standardization program.

**The 1947 program:** Estimated 784,300 customers to be standardized.

Domestic customers 25 to 60 cycle—697,400.

Commercial customers 25 to 60 cycle—72,600.

Power customers 25 to 60 cycle—14,300.

**The 1953 Program estimates—904,700 customers.**

Domestic customers 25 to 60 cycle—794,100—96,700 higher than original.

Commercial customers 25 to 60 cycle—93,600—21,000 higher than original.

Power customers 25 to 60 cycle—17,000—2,700 higher than original.

In 1947, based on the experience of prior years, it was estimated that the average annual load growth would be 77,700 kilowatts for a six-year period. Since 1947 we have actually experienced an annual load growth averaging 155,200 kilowatts—an increase over the anticipated average of 99.7 per cent. (This estimated increase of 77,700 kilowatts





**INCREASED USE** of electrical appliances by Ontario customers since 1947 is one of the major reasons for higher cost of Ontario Hydro's frequency standardization program. In 1947, an average saturation of 2.7 frequency sensitive items was estimated. Today, the Commission must consider an average saturation of 4 items per home for remainder of standardization program.

was slightly higher than the long-term average increase that had been experienced.)

Who would have believed in 1947 that the average annual domestic use of power in urban homes would have increased from 2,886 kilowatthours in that year to 3,957 in 1951, and higher in 1952 reflecting the increased use of more electrical appliances. The average saturation calculated from the 1947 report was estimated at 2.7 frequency sensitive items per domestic customer. Today we must consider an average saturation of 4 frequency-sensitive items per home for the remainder of the program.

No, my friends, in 1953 you are not dealing with the program that was before you in 1947.

Apart from the above there is also the increase in cost of labor 1952 over 1947—71 percent. (Dominion Bureau of Statistics), and the increase in cost of electrical equipment 1952 over 1947—58 percent. (Dominion Bureau of Statistics).

An appreciation of the impact on the estimates of the increased average saturation of frequency-sensitive items from 2.7 to 4 can be gained by considering several items:

#### **Electric Refrigerators**

The Canadian Electrical Manufacturers Association report that of a total of 590,264 shipped into Ontario between 1946 and 1952 inclusive, 437,424 were shipped into the Province between 1949 and 1952 inclusive—the frequency program started in October, 1949:

Number of Domestic oil burners in use in Ontario:

1945—21,995; 1946—52,892; 1947—86,012; 1948—96,746; 1949—126,552; 1950—189,878; and 1951—217,212.

The tremendous increase in this program is also accounted for by the increase in sales of washing machines in Ontario over the years:

1946—approximately 34,211 sold; 1947—approximately 68,872 sold; 1948—approximately 91,650 sold; 1949—approximately 95,873 sold; 1950—approximately 92,190 sold; 1951—approximately 67,643 sold; and 1952—approximately 80,546 sold.

These statistics give tangible evidence of the tremendous advance in the standard of living in this Province and the great prosperity of this Province.

We think of our rural folk.

Just imagine back in 1947 we at Hydro were serving 194,053 rural customers. Today, at the end of 1952, we were serving a total of 343,537 rural customers—an increase of approximately 150,000. Remember, please, that there can be about two hundred applications of electricity on each farm. Every new rural customer in this area presents new problems at Hydro in connection with Frequency Standardization.

Before leaving this subject, let me refer to the increase in population brought about during the past two years as a result of immigration from Europe. A total of 190,901 people entered Ontario—equal approximately to the population of two cities the size of London, Ontario. Think of what it cost Hydro to change the frequency of a city the size of London?

How many more cities the size of London, Ontario, are we going to experience during the next two years, three years, or ten years? An example of the matters over which we have no control and matters over which it would be extremely difficult to make a prognosis.

Looking over the past few years, we are somewhat proud of the work which has been accomplished and the controls that have been maintained. For example, in 1947, it was estimated that the direct cost for changing a certain item would be \$72.00. By 1949 the actual cost of changing this same item had risen by about 36%. Since 1949 there has been little change in this cost in spite of the fact that in 1952 labor costs had increased 71% and material costs increased 59.3% over 1947. But since 1949 on the particular item referred to, there has been no appreciable increase in cost over the 36% increase to 1949. This has only been possible because the increase in labour costs have been offset by improved efficiency in carrying out our standardization program.

Several questions might well be asked concerning our program. For example:—

Question 1: To what extent has advance 60-cycle facilities curtailed the growth of 25-cycle load in the Niagara Division?

Answer: As of December 31, 1952, 25-cycle load growth was curtailed by approximately 160,000 kilowatts as a result of 60-cycle advance supply. It is estimated that for the balance of the standardization program another 150,000 to 200,000 kilowatts will be supplied at 60 cycle under the advance program which will bring substantial savings.

Question 2: What has been the growth in 60 cycle in the Niagara Division during the standardization program?

Answer: To December 31, 1952—715,000 kw.—approximately double the estimate for the first three years of the program. This indicates the extent to which 60-cycle loads have grown in the last

*(Continued on next page)*



few years which, if standardization had not been undertaken, would have been 25-cycle loads.

**Question 3:** What will Frequency Standardization be worth to our Industrial Customers?

**Answer:** In the next ten years it is estimated that the industrial customers who have been changed from 25 to 60 cycle and new industries that will have come in will have obtained benefits worth to them some \$38,000,000 due to the lower cost of the 60-cycle equipment. In the following 20 years, assuming an average rate of growth of 5.7%, it is estimated that there will be an additional advantage to industry of \$250,000,000 due to the lower prices of 60-cycle equipment in industry. Should the load growth prove to be higher than 5.7%, the value to industry will be correspondingly greater. In addition, with all areas on 60 cycles, with mass

production and wider competition in industry, there should be a reduction in price of domestic appliances, with a corresponding saving to the domestic customer.

**Question 4:** What is this program worth to municipal and rural systems in the capital cost of generation, transmission, transformation and distribution?

**Answer:** It has been estimated that the value of this program at present-day prices will approximate \$60,000,000 by the end of 1961 or the end of the standardization period. In the years after 1961 for instance, between 1961 and 1981, a twenty-year period, at a load growth of 5.7%, it is expected that the saving will be \$270,000,000. Although the cost of the Frequency Standardization work has increased over that estimated in

## HYDRO HIGHLIGHTS—1952

### JANUARY

First unit of Otto Holden G.S. on the Ottawa River above Mattawa placed in service—the thirteenth new power source brought into service on the Commission's record program of development and expansion.

### FEBRUARY

Second unit of Richard L. Hearn G.S. in Toronto given service tests. Public Relations and Frequency Standardization Divisions co-operated in a first demonstration at Windsor of the methods of standardizing heating equipment to the higher frequency.

### MARCH

Building of the first of two cofferdams required for the dewatering of intake sites for the Niagara development begun.

### APRIL

Approval given by the Commission for a third unit at Pine Portage G.S. in Northwestern Ontario.

Construction work started on increasing transformer capacity at R. H. Martindale T.S. and F. C. Station near Sudbury, Ontario.

### MAY

Excavation of first 5½-mile tunnel commenced at Sir Adam Beck-Niagara G.S. No. 2. Second unit of J. Clark Keith G.S. at Windsor placed in service.

### JUNE

Official opening of Otto Holden G.S., with the Prime Minister of Ontario, The Honourable Leslie M. Frost, Q.C., LL.D., officiating, and members of the Provincial Legislature and representative citizens attending.

### JULY

First hearings held by the International Joint Commission in connection with the applications of the Governments of Canada and the United States for approval of the St. Lawrence power project. The applica-

tions were made on the basis of Canada proceeding alone with the overall seaway development.

### AUGUST

New agreement based on mutual understanding and goodwill signed by the Commission and the Niagara Development Allied Council A.F. of L., representing 17 unions. Further co-operation decided upon in the development of a savings and insurance plan for Niagara construction workers.

### SEPTEMBER

A total of 350,000 people reported to have viewed the Hydro exhibits at the Canadian National Exhibition, housed for the first time in a building devoted entirely to Hydro displays. The Toronto Hydro-Electric System co-operated with the Commission.

### OCTOBER

International Joint Committee approves St. Lawrence power project. Break-through between the third and fourth sections of the first tunnel at the Niagara development is occasion for a "progress" ceremony at which the Lieutenant-Governor of Ontario, The Honourable Louis O. Breithaupt, officiated, with over 500 representative citizens attending.

### NOVEMBER

Third unit of Richard L. Hearn G.S. placed in service.

Quarter million mark passed in number of customers changed over to 60-cycle frequency on standardization program in Southern Ontario.

### DECEMBER

An all-time record up to the end of 1952 in Ontario Hydro's primary energy requirements was established on December 23. On that day, the more than 1¼ million customers supplied directly or indirectly by Ontario Hydro required a total of 61,380,356 primary kilowatthours, in terms of load at the generators.



1947, it should be borne in mind that the savings will likewise increase in proportion. It is estimated that the length of time after standardization for the accrued benefits of standardization to equal the total cost of the program will be approximately twenty years, which is the same period estimated in 1947 when prices were lower.

#### Other items of importance—

Up to the present time the Commission has been able to arrange with the manufacturers to discontinue the sale of certain 25-cycle equipment in Southern Ontario and in its place manufacture dual frequency equipment.

For example:	Number
Motors, up to 50 hp. -----	31,853
Fluorescent lighting ballasts -----	255,018
Transformers of all types -----	approx. 1,000,000 kva.
Refrigerators (just starting 1953) -----	100
Oil burners and controls --	45,615
Miscellaneous -----	3,473
Representative Savings on Dual Frequency Equipment	Savings in % of Standardization Cost
Industrial motors -----	60%
Fluorescent lighting ballasts --	91%
Transformers (including allowance for increased capacity at 60 cycles) -----	80%
Dual frequency refrigerators --	83%
Oil burners and controls ----	93%
Miscellaneous -----	50%

In addition, the saving on rewinding motors to December 31, 1953 is equivalent to a saving of 60%.

Folks, I do hope you will bear with me, the members of the Commission and the staff of Hydro and will realize the tremendous difficulties involved in attempting to make a reliable prognosis. I repeat, I am not at this time prepared to estimate the future but you can be assured that the matter is receiving constant study and that you will be advised as quickly as possible.

May I repeat, the amount spent on Frequency Standardization to the end of 1952 has been financed by the Commission and, to date, no outside borrowings have been found necessary to carry the program. Thank you.



MEMBERS of 1953 A.M.E.U. Executive, seated, l. to r., Ronald Harrison, Scarborough Twp.; A. W. Taber, Fort William; J. E. Teckoe, Jr., Windsor; W. G. Lane, Collingwood; R. B. Chandler, Port Arthur; R. S. Reynolds, Chatham; Rex Martindale, Sudbury, Past President; N. A. Grandfield, Galt, President; W. R. Mathieson, Secretary-Treasurer; G. R. Davis, Ottawa; O. H. Scott, Belleville; H. A. Howard, Thorold; E. A. Washburn, Stratford; B. M. Graham, North Bay, and J. A. Williamson, Niagara Falls, Ontario.

## N. A. GRANDFIELD HEADS A.M.E.U.

NORMAN A. GRANDFIELD, General Manager, Galt Public Utilities Commission, was elected President of the Association of Municipal Electrical Utilities during the annual convention this year. He succeeds Rex H. Martindale, veteran Manager-Secretary, Sudbury Hydro-Electric Commission.

Born in England, the new President was associated with Ontario Hydro's Municipal Department before his appointment as Assistant Manager of Brantford P.U.C. In 1951, he became General Manager of the Galt Commission.

Other members of the 1953 executive are: A. W. Taber, Fort William, Vice-President, and W. R. Mathieson, Toronto, Secretary-Treasurer.

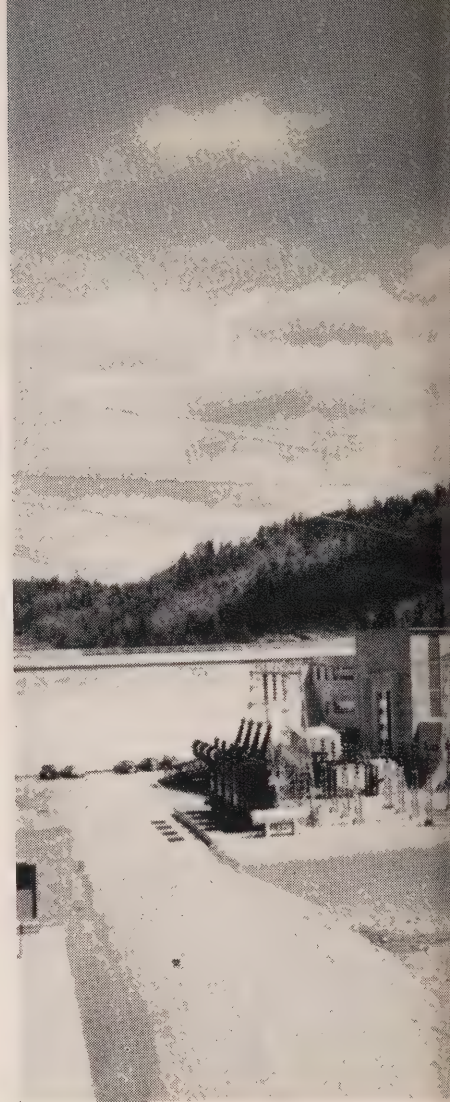
Directors were elected as follows:—H. A. Howard, Thorold; R. S. Reynolds, Chatham, and O. H. Scott, Belleville.

District Directors: Georgian Bay—W. G. Lane, Collingwood; Toronto—Ronald Harrison, Scarborough Twp.; Niagara—J. A. Williamson, Niagara Falls; East Central—Ross Dobbin, Peterborough; Eastern—G. R. Davis, Ottawa; Western—J. E. Teckoe, Jr., Windsor; West Central—E. A. Washburn, Stratford; Northeastern—B. M. Graham, North Bay, and Northwestern—R. B. Chandler, Port Arthur.



# Canada's PROUD RECORD

**Survey shows record-high total  
of 1,064,600 horsepower of new  
hydro-electric capacity was placed  
in operation during past year**



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**P**REPARED under the authority of Hon. Robert H. Winters, Canadian Minister of Resources and Development, the following review presents, for the year 1952, the results of a regular annual survey conducted by the Water Resources Division of the Resources and Development Department. While primarily concerned with progress in the development of Canada's waterpower resources, this review also touches on other phases of electrical power production and distribution. Effective co-operation in the assembly of information is received from provincial authorities and from power-producing and distributing organizations located throughout the country.

The review in full is as follows:

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**A** NEW record was established in 1952 in the total capacity of new hydro-electric generating units completed during the year, although not in the net increase in the total of installed capacity of hydraulic plants in Canada. The record-high total of 1,064,600 horsepower of new hydraulic turbine capacity was brought into operation but, allowing for dismantling of old plants and list adjustments, the net increase is reduced to 961,726 hp. However, the latter figure is only slightly below the previous record of 988,675 hp. which was set in 1943 when the huge Shipshaw plant of the Aluminum Company of Canada was completed on the Saguenay River. In 1952, new capacity was more evenly distributed across the country, although the greater portion was located in the Province of Quebec. The new projects which

have been undertaken in rather remote regions serve to enhance the potential value of other undeveloped sites which only recently appeared to be located so distantly from centres of population as to be of little economic importance; also the continuing improvement in the technique of long-distance transmission is reflected in proposed transmission lines. The total of installed capacity of waterpower plants in Canada is now listed at 14,304,230 hp. which represents only 22 per cent of known resources. New plants and extensions which are scheduled for operation in 1953 total 860,000 hp., while other developments which are under preliminary construction, or are definitely planned for later years, exceed 2,000,000 hp.

In addition to waterpower development, a number of thermal units of large capacity





**OFFICIALLY PLACED** in service in June, 1952, Ontario Hydro's 273,000-horsepower Otto Holden Generating Station on the Ottawa River had seven units in operation by December, 1952, with the eighth and final unit scheduled for completion early in 1953. Construction began in 1949.

were brought into operation and others are under construction. Although the production of the electrical energy to meet Canada's expanding industrial and domestic consumption continues to be largely from hydraulic sources, thermal power capacity is also increasing and becoming a more important factor in the field of power production. Supplemented by the output of new hydraulic and steam plants, total production of electrical power was at a rate of approximately eight percent above 1951. In the country as a whole, power production facilities were sufficient to meet the present demand but little reserve capacity was available.

In the field of power distribution, construction was also very active. New main transmission lines were completed or were under construction in many sections of

the country, new transformer and sub-stations were built, and secondary lines were extended. Good progress in rural electrification was achieved, particularly in Ontario, Quebec, and Manitoba.

A review of the year's activities in central-station construction, and in distribution facilities, in each province is given herewith.

#### **BRITISH COLUMBIA**

Two new developments were completed in 1952 and construction was active on other extensions and major new projects.

The British Columbia Electric Company Limited completed its powerhouse at Wahleach Lake, about 15 miles east of Chilliwack, with operation of the single unit of 82,000 hp. at 2,000-foot head beginning in December. However, during this winter, output will be limited to run-of-river capacity as completion of

the storage dam was delayed by forest closure due to fire hazard in the summer of 1952. The Company has placed an order for the fourth unit of 62,000 hp. to be installed in its Bridge River plant for 1954 operation; preliminary work has been undertaken to raise the level of the La Joie Dam to provide increased storage. The proposed modernization of the Jordan River plant has been deferred. The expansion was continued of the Company's transmission and distribution systems, with the completion of a 230-kv. line from Wahleach to Vancouver and of 60-kv. lines from Bridge River to Lillooet and Chilliwack to Hope. Substation capacity in the Vancouver area was substantially increased. The small diesel plants at Yale and Lillooet have been dismantled.

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The British Columbia Power Commission brought into operation its two-unit 4,000-hp. Clowhom Falls plant which is located near the mouth of the Clowhom River at the head of Salmon Arm and which is designed for an ultimate capacity of 12,000 hp. In its John Hart plant on the Campbell River, the Commission has installation under way on two additional units each of 28,000 hp., with operation scheduled for early 1953, which will bring total capacity to 168,000 hp. A 132-kv. line from Campbell River to Duncan, with terminal facilities including two 20,000-kva. transformers, has been completed. Surveys and investigations were made covering proposed small hydro-electric developments on the Kokish River on Vancouver Island and on the Spillimacheen River near Golden. A number of additions totalling about 2,400 kw. were made to diesel-electric plants at various centres. The construction of a second 60-kv. circuit between Vernon and Kamloops is under construction for use in 1953. The Commission is dismantling the two 25-cycle 6,000-hp. units which comprise the Puntledge River development and will use a frequency changer to supply Canadian Collieries (Dunsmuir) Limited; the plant, which dates back to 1913, may be reconstructed at some future time.

The Aluminum Company of Canada made good progress on its great Nechako-Kitimat development and work was well up to schedule for anticipated 1954 initial operation. The Kenney Dam on the Nechako River at Grand Canyon has been practically completed; the diversion tunnel was closed in October and storage of water has begun, with the expectation of a rise of 140 feet in water level behind the dam by December 31, 1952. Driving of the 10-mile, 25-foot-diameter tunnel from Taitsa Lake to Kemano was well under way with four miles completed in 1952. Drilling of the two penstocks from the tunnel to the powerhouse is well advanced, and the excavation is half completed for the underground cavity to house the three units of the first stage. Construction is proceeding satisfactorily on the 50-mile transmission line to Kitimat, with clearing and placing of tower footings about half completed and one-fifth of the towers in place. No definite plans have been made for expansion beyond the present programme of 420,000 hp. in three units to be completed in 1954, although the ultimate capacity of the development is estimated at more than 2,000,000 hp.

The Consolidated Mining and Smelting



**DURING 1952 the British Columbia Power Commission made progress with expansion of its system. Photo shows two-unit, 4,000-hp. Clowhom Falls development on the Clowhom River.**

Company Limited made rapid progress in its Waneta development on the Pend d'Oreille River and it is now expected that the plant will be brought into service in 1953. Initial capacity will comprise two turbines, each of 105,000 hp. driving a 90,000-kva. generator and ultimate capacity is 420,000 hp. Power will be delivered to Trail over three 60-kv. lines to be constructed in 1953. The Company expected to complete by the end of 1952 its 82-mile 170-kv. line from South Slokan to Kimberley, including a two-mile span across Kootenay Lake.

The Ashcroft Water, Electric, and Improvement Company in May replaced a 250-hp. turbine by one of 300 hp. in its No. 2 plant on the Bonaparte River. Violamac Mines B.C. Limited is considering the construction of a 1,200-hp. development on Wilson Creek in the Slokan district. Alaska Pine and Cellulose Limited at Port Alice is undertaking in 1953 the installation of a 3,200-hp. turbine with a 2,500-kva. generator to supply power for a new pumping station. The East Kootenay Power Company Limited is planning the construction of a new dam on the Bull River to replace the present structure which serves the Aberfeldie powerhouse. The West Kootenay Power and Light Company Limited completed its 60-kv. line from Crawford Bay to Creston and operation of the 1,850-

hp. Goat River plant has been reduced to that of emergency use only.

## **YUKON TERRITORY**

The Northwest Territories Power Commission in November brought into operation its Mayo River development, near Mayo Landing, about 215 air miles north of Whitehorse. The present plant consists of one turbine of 3,000 hp. under average head of 118 feet driving a 3,000-kva. generator, but provision has been made for a second similar unit. The project includes a main earth-fill dam 115 feet in height and of 360-foot length on the Mayo River and a rock-filled timber-crib storage dam at the outlet of Mayo Lake. Power is transmitted to the Galena and Keno Hill mining areas over a 33-mile 69-kv. line. Service is also supplied to the nearby village of Mayo Landing.

The Yukon Hydro Company Limited is planning to increase the capacity of its Porter Creek plant, near Whitehorse, from 500 hp. to 1,400 hp. An order has been placed for a 940-hp. turbine and 875-kva. generator for 1953 delivery.

## **ALBERTA**

No new hydro-electric plants were brought into operation but Calgary Power Limited began preliminary construction on the Bearpaw development, on the Bow River just west of Calgary, to con-



sist of one unit of 22,000 hp. for 1955 operation. The Company also is undertaking for 1954 operation the installation in its Ghost plant on the Bow River of a fourth unit of 30,000 hp. driving a 23,500-kva. generator. During 1952, the Company continued the expansion of its transmission system, including the building of 95 miles of a line at 132 kv. from Medicine Hat to Calgary which will be completed in 1953; 19 miles of 66-kv. line and 168 miles of 13 to 33 kv. also were completed. During the year, service was given to 3,500 farms and the total now on line is 14,000 farms.

Canadian Utilities Limited completed the installation of a steam turbine unit with a capacity of 7,500 kw. in its Drumheller plant, to bring total capacity to 20,000 kw. A new 69-kv. 104-mile line was built from Vermilion to Cold Lake. More than 1,000 farms were given service in 1952, the total now being 3,700.

Northland Utilities Limited is installing for 1953 operation two additional units each of 500 hp. in its hydro plant at Jasper and is considering a development of 1,150 hp. on the Hart River near McLennan, Alberta. In addition to a number of small municipalities, the Company serves 350 farms in northern Alberta.

The City of Edmonton is adding to its steam plant, for operation in early 1953, a new turbo-generator of 30,000 kw., which will bring the total capacity to 92,000 kw. The City of Medicine Hat also has an extension of 30,000 kw. under installation, and operation is scheduled for October, 1953; present plant capacity is 13,500 kw.

## SASKATCHEWAN

The Saskatchewan Power Corporation, which is owned by the Provincial Government, during 1952 increased the capacity of its thermal generating plants by 37,565 kw., the principal additions being 25,000 kw. at Saskatoon, 10,000 kw. at Prince Albert, and 1,865 kw. at Unity. The total capacity of the Corporation's plants is now approximately 134,000 kw. and present plans call for an addition of 20,000 kw. at Estevan during 1954-56 and of 50,000 kw. at Saskatoon during 1954-57. During 1952, the Corporation completed 184 miles of 69-kv. line, and 408 miles of 24-kv. line. New substations were built at eight locations, with a total capacity of 46,000 kva. Farm electrification is proceeding slowly owing to the low density of rural population but it is estimated that by the end of 1952 more than 10,000 farms would be receiving service.

## MANITOBA

The Manitoba Hydro-Electric Board completed its 114,000-hp. Pine Falls development on the lower Winnipeg River, four units having been put in service in 1952. The plant comprises six units each of 19,000 hp. under 39-foot head, two of which were brought into operation in 1951. Generators are rated at 15,500 kva. Power is delivered to Parkdale substation in Winnipeg over a 115-kv. line which was completed in 1952. The Board has begun preliminary construction of the McArthur Falls development on the Winnipeg River at the outlet of Lac du Bonnet; camps and access roads have been built, cofferdam construction is under way, and contracts have been awarded for the hydraulic and electrical equipment. The plant will have a capacity of 80,000 hp. in eight units each of 10,000 hp.; generators are rated at 8,500 kva. Operation is scheduled for 1955. Preliminary engineering work is proceeding towards the construction of a steam-electric plant at Brandon to comprise, for initial operation in 1956, two units each of 30,000 kw., and ultimately four units with a total capacity of 120,000 kw.

The Winnipeg Electric Company completed in September 1952 the installation of the sixth and final unit of 37,500 hp. in its Seven Sisters plant on the Winnipeg

River. The plant has a total turbine capacity of 225,000 hp. under 66-foot head and a generator capacity of 195,000 kva. The Pinawa channel has been blocked off and sealed against leakage.

Sherritt-Gordon Mines Limited brought into operation its 7,000-hp. plant on the Laurie River and power is now being supplied to the Lynn Lake mining field. The development includes a storage dam on Eager Lake. Preparatory to a second development, work will begin in 1953 on the construction of a storage dam on the Loon River and a diversion canal to the Laurie River.

The Manitoba Power Commission continued its program of rural electrification and extended service to 5,000 farms and to 33 towns and villages. A total of 34,000 farms are now on line. New transmission lines include 60 miles at 115 kv., 127 miles at 66 kv., and 128 miles at lower voltage; also about 200 miles of line was converted to higher voltage. Sub-station capacity was increased by 39,000 kva.

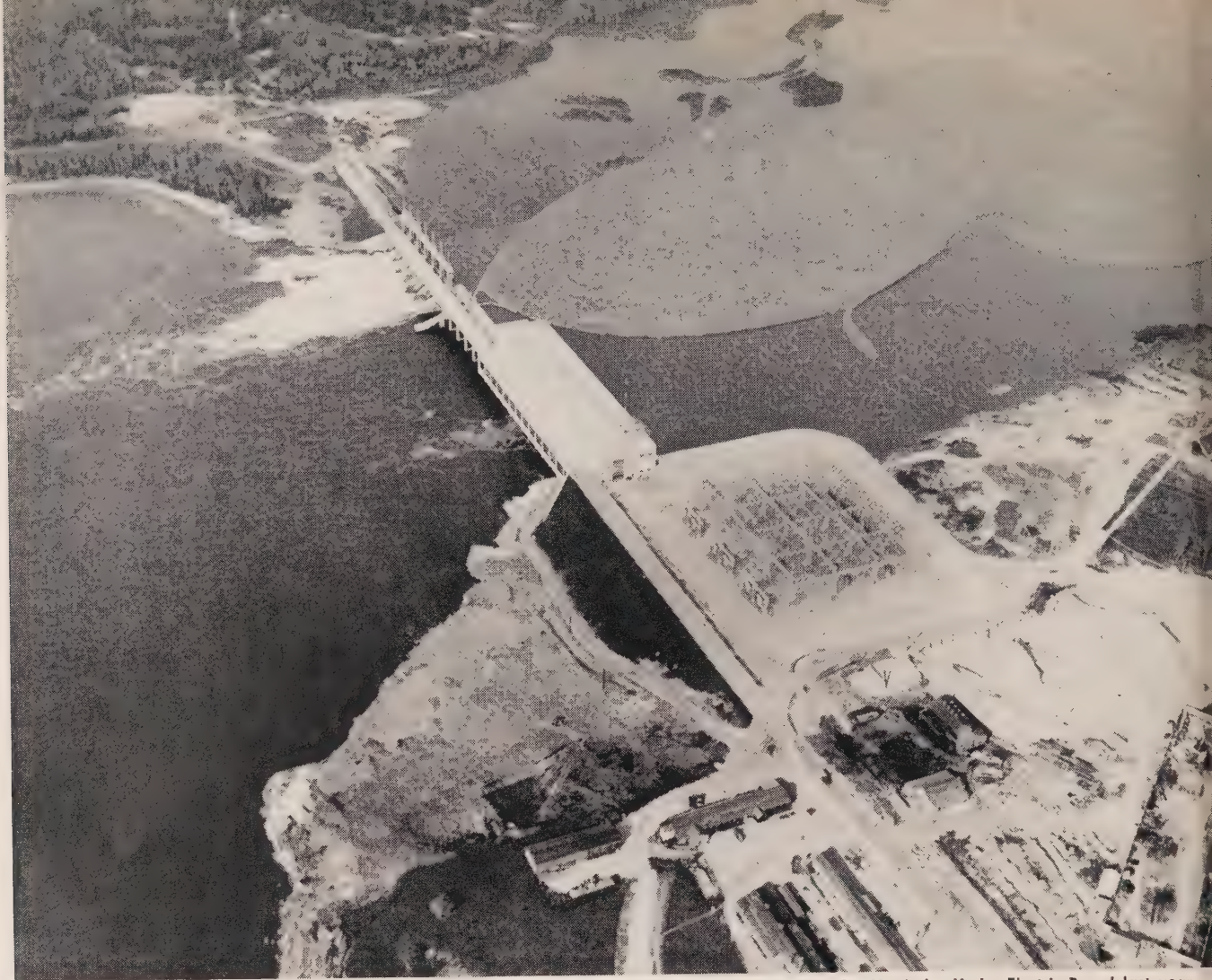
The City of Winnipeg Hydro-Electric System brought into operation the first unit of 15,000 kw. capacity in its new steam plant, which is being built to carry peak loads. A second unit of 25,000 kw. is scheduled for early delivery and for 1953 operation.

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**LOCATED about 215 airline miles north of Whitehorse, Northwest Territories Power Commission's 3,000-hp. Mayo River station supplies power to mining areas and Mayo Landing.**







WORK on the 114,000-hp. Pine Falls Development on the lower Winnipeg River was completed by the Manitoba Hydro-Electric Board last year.

## ONTARIO

The Hydro-Electric Power Commission of Ontario continued construction during 1952 on two hydro-electric and two steam-electric projects, each of major proportions; also important additions were made to its transmission and distribution systems.

### *Hydraulic Power Developments*

#### (a) Otto Holden Generating Station

The first unit at this station, which is located on the Ottawa River above Mattawa, was placed in operation on January 10, 1952, and the second on January 22. The next five units were placed in service in the months of March, April, July, September, and November, respectively. The eighth and final unit is expected to be placed in service early in 1953. Construction is essentially complete except for those features incidental to the installation of unit No. 8, and clean-up of the project. The eight units

of this plant will have a total installed turbine capacity of 264,000 brake horsepower (dependable peak capacity 273,000 electrical hp.).

#### (b) Sir Adam Beck-Niagara Generating Station No. 2

This project covers a greater utilization of the power resources of the Niagara River, as allowed by the Niagara Diversion Treaty of 1950. Construction work was begun in 1951 on the first stage comprising seven units served by Tunnel No. 1. In August 1952, authority was granted for the installation of five additional generating units, together with the second tunnel, intake structure, and other related facilities. Construction progress is well advanced on the many phases of the project. At the intake, the excavation for the gathering-tube associated with Tunnel No. 1 is well advanced, while the coffer-dam for the second gathering tube has been placed. Tunnel No. 1 has been about one-

third excavated, and excavation for Tunnel No. 2 is under way. For the canal and headworks' section (for the complete project) most of the earth excavation and more than half of the rock excavation has been completed, and the headworks concrete-placing is well advanced. At the powerhouse (for the 12 units), about two-thirds of the penstock excavation has been completed and the major portion of rock has been removed for the powerhouse. Concrete-placing for the powerhouse, and for the penstock envelope and saddles, is also well advanced. The 12-unit installation, totalling 1,260,000 brake horsepower (1,200,000 electrical hp. installed capacity), is planned for initial operation in 1954, and to be completed in 1956.

#### (c) Pine Portage Generating Station

The third unit at Pine Portage, Nipigon River, was authorized early in 1952. This unit is planned for operation in the fall of 1954. The major equipment



has been ordered, and engineering and design has been started. With the third unit in operation, this plant will have a dependable peak capacity of 124,700 hp. *Steam-Electric Stations*

**(a) J. Clark Keith Generating Station, Windsor**

The initial stage of this project, consisting of two units, is now in operation, the first unit being placed in service in November 1951, and the second in February 1952. The second stage, also comprising two units, is planned for operation, one unit in the spring of 1953, and the other in the fall of 1953. Each unit is rated 88,500 hp., for a total of 354,000 hp. for the four units.

**(b) Richard L. Hearn Generating Station, Toronto**

The initial stage, consisting of two units, is now in operation, the first being placed in service in October 1951 and the second in February 1952. The first unit is rated 108,000 hp. at 25 cycles (134,000 hp. when converted to 60 cycles), and the second is rated 134,000 hp. at 60 cycles. The second stage, also consisting of two units is well advanced, the third unit having been placed in operation in November 1952, while the fourth is planned for May 1953. The ratings of the third and fourth units are identical respectively with those of the first and second units. The total four-unit installation will have an installed capacity of 536,000 hp. when all units are operating at 60 cycles.

*Transmission Lines, Rural Lines and Rural Customers*

During the year the Commission extended its transmission and rural line facilities by the approximate amounts indicated in the following tabulation:

230 kv. lines—circuit miles—	82
115 kv. lines—circuit miles—	104
44 kv. & lower—circuit miles—	410
Rural lines —circuit miles—1950	

The total number of farm services is expected to be approximately 129,000 by the end of 1952.

In addition to the activities of the Commission, the Great Lakes Power Company is constructing a 20,000-hp. plant at Scott Falls on the Michipicoten River, with operation anticipated early in 1953. The plant contains two units each of 10,000 hp. under 75-foot head and generators are rated at 8,500 kva. Also preliminary construction has begun on a two-unit 15,000-hp. development upstream at McPhail Falls where the head is 48 feet; initial operation is scheduled for late 1954.

**QUEBEC**

The Province of Quebec, which is rich in waterpower resources, continued to lead in their development by bringing into operation a total of 597,000 hp. and with other major plant expansions and new projects under construction.

In its Beauharnois No. 2 powerhouse on the St. Lawrence River, the Quebec Hydro-Electric Commission increased

capacity by 222,000 hp. in four new units, two of 55,000 hp. and two of 56,000 hp. The capacity of the No. 2 powerhouse is now 555,000 hp., while that of the entire development is 1,297,000 hp. which will be increased to its ultimate of 1,408,000 hp. by the end of 1953 by the addition of the final two units. Dredging operations in the intake canal are being continued and will be accelerated by the use of an additional powerful dredge to be available in the spring of 1953. Construction of the new plant at Rapid II on the upper Ottawa River is proceeding according to schedule, and two units each of 16,000 hp. are expected to be in operation by December 1953; the ultimate capacity of this plant will be 64,000 hp. At the Rapid VII plant, one 15,000-kva. generator has been converted from 25 to 60 cycles. On the North Shore of the lower St. Lawrence River, preliminary field work is under way for the construction of a large hydro development on the Bersimis River, some 62 miles above the mouth. It is planned to develop approximately 1,000,000 hp. at this site, and it is expected that 300,000 hp. will be in service by the latter part of 1956. In the field of power distribution, the Commission completed a 25-mile high-voltage transmission line between Cadillac in Northwestern Quebec and the generating plant under construction at Rapid II; an 18-mile line between

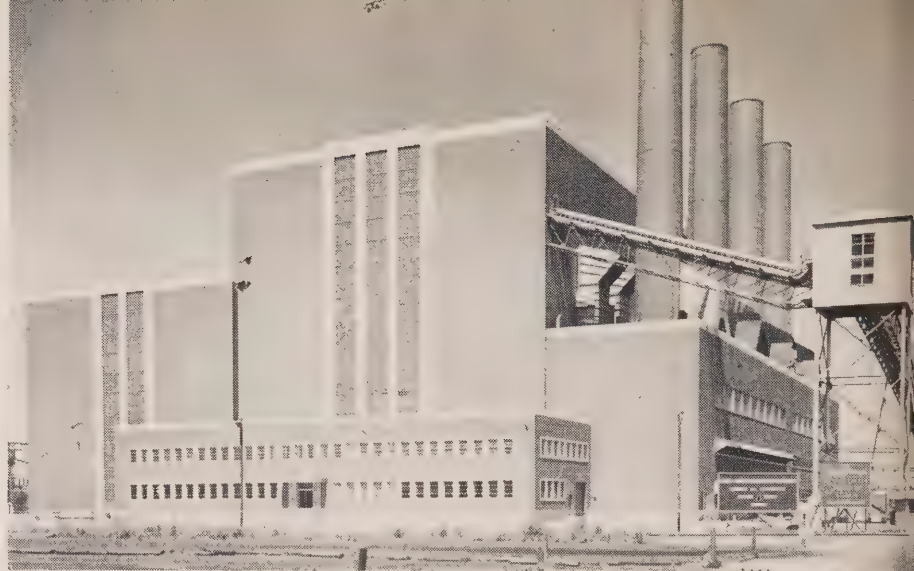
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**SCHEDULED for initial operation in 1954, Ontario Hydro's Sir Adam Beck No. 2 development will have a total installed capacity of 1,200,000 hp.**

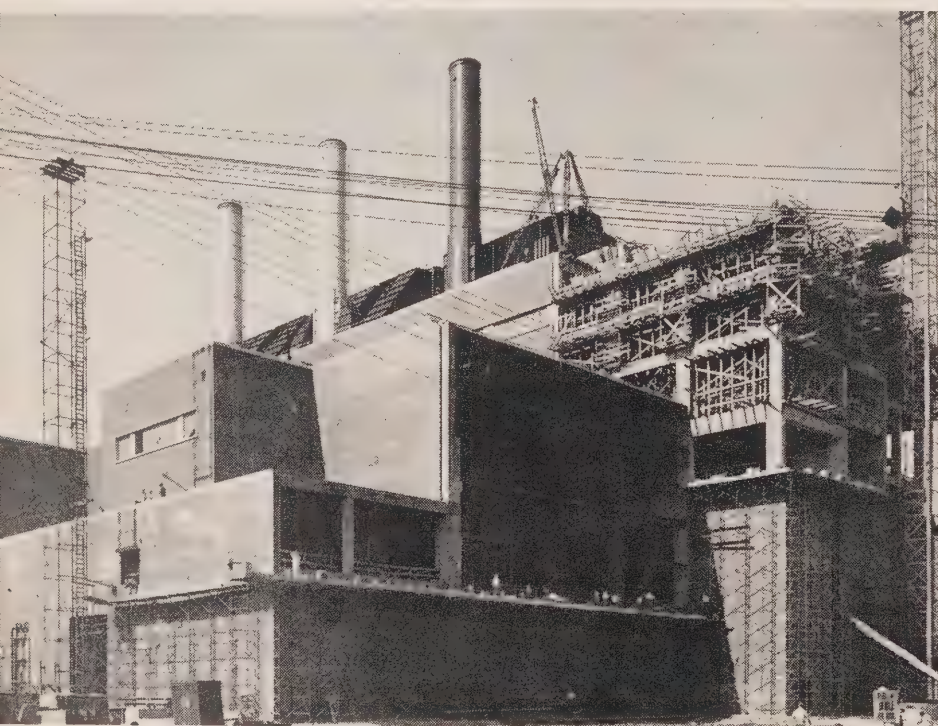




CANADA'S largest steam-electric station, Ontario Hydro's Richard L. Hearn Generating Station in Toronto had three units in operation by November, 1952. It will have a total installed capacity of 536,000 hp. when four units are operating at 60 cycles.



INITIAL STAGE of Ontario Hydro's J. Clark Keith Generating Station at Windsor was completed in 1952 with two units in operation. Work also proceeded on third unit, scheduled for operation this year. It will have a 4-unit installed capacity of 354,000 hp.



Rapid VII and Rapid II, and a 31-mile high-voltage transmission line linking Beauharnois with Montreal North, will be completed in 1953. The Commission is planning the laying in 1953 of a 31½-mile submarine cable on the bed of the St. Lawrence River from the Manicouagan Peninsula on the North Shore across to Les Boules on the South Shore; also a beginning on the construction of other transmission lines from the Manicouagan and Bersimis plants, including one to Montreal. A transmission line from the Ottawa River plants, approximately 146

miles in length, is contemplated to serve the Lake Chibougamau mining district. New substations have been completed, enlarged, or are in the course of erection in Montreal and Northwestern Quebec. Two obsolete plants of the Commission were permanently closed in 1952; the St. Timothee plant of 28,800 hp. on the St. Lawrence River is being dismantled now and the Chambly plant of 21,600 hp. on the Richelieu River will be dismantled in the near future.

The Aluminum Company of Canada expected to complete its Chute-du-Diable

development on the Peribonka River by the end of 1952. At the end of October, four units were in operation, and it was anticipated that the fifth and final unit would be ready about the middle of December. The total turbine capacity of the plant will then be 275,000 hp. Power from this station is carried over a new double-circuit 154-kv. tower line to the switching station located at Isle Maligne, a distance of approximately 16 miles. The Chute-a-la-Savanne plant, also under construction by the Company, is located about 13 miles downstream from Chute-du-Diable; final closure of the dam was being made in November and it was expected that the first unit would be in operation in late December. This station, which will contain five units each of 55,000 hp., will tie-in to the present double-circuit transmission line running from Isle Maligne to Dolbeau.

The Manicouagan Power Company, which commenced construction in the early spring of 1951 of a development near the mouth of the Manicouagan River, comprising initially two generating units each of 45,000 hp. under 125-foot head, made such good progress that it was expected the first unit would come into production in December 1952, and the second unit early in 1953. To allow the building of the dam and headworks in the dry, the Manicouagan River, the third largest in the Province of Quebec, was successfully diverted through a tunnel in the river bank. The plant, with an ultimate capacity of 270,000 hp., will provide reserve power for the pulp-and-paper industry at Baie Comeau and for community requirements; it also will supply electricity for secondary industries which are growing up, or expected to grow up,



on the North Shore of the St. Lawrence River. In this connection, however, special negotiations are now being carried on with the Quebec Hydro-Electric Commission for the transmission of power via submarine cable to the South Shore of the St. Lawrence River, principally in order to supply the new Noranda (Gaspé) Copper Development. Although Quebec Hydro has announced plans for the Bersimis River, these plans do not call for production until approximately 1956; since the Gaspé copper development's progress is conditioned upon the availability of power, the completion of the Manicouagan Power Project will allow the necessary power to be placed at the disposal of the new Gaspé copper project four to five years in advance of any other plans.

The Shawinigan Water and Power Company has not added any further generating capacity to its system. The work required for the diversion of runoff from 260 square miles of the drainage basins of the Upper Megiscane and Susie

Rivers into the St. Maurice basin is well advanced, and this diversion will be in operation sometime in 1953. The Company has completed the work of raising the voltage of its lines from Isle Maligne to Quebec from 187 kv. to 230 kv. A new 110-kv. line from Sorel to Varennes has been virtually completed, and work is progressing on the installation at Sorel of an additional 50,000-kva. 230-to-110,000 volts transformer to supply this line. A new 50,000-kva. transformer bank has been installed at Donnacona as a tie between the 230-kv. and 60-kv. systems at that location. A total of 205 miles of rural distribution line has been built, and the Company is now serving about 42,000 farms.

The Price Brothers and Company has had under construction since June 1951 two hydro-electric developments on the Shipshaw River; construction is progressing on schedule, and the plants are expected to be in operation by the end of 1953. The main plant at Chute-des-Georges will have a capacity of 70,000

h.p. in two units under 348-foot head, while the second at Chute-aux-Galets will have one unit of 9,000 h.p.

The Ste. Marguerite Power Company is proceeding on schedule with the construction of their hydro-electric power development on the Ste. Marguerite River at "61 Falls," seven miles above the mouth of the St. Marguerite River. The plant will have two units each of 8,500 hp. at 98-foot head and will probably be placed in service in May 1954. Power will be delivered to Seven Islands and to Clarke City.

The City of Megantic commenced in May the construction of a two-unit hydro-electric development of 4,500 hp. on the Chaudiere River at Gayhurst Site, which is expected to come into initial one-unit operation in the fall of 1953.

The Southern Canada Power Company built and placed in operation, during the year, 33.9 miles of 48-kv. transmission line. The Company also has increased its rural

*(Continued on next page)*

**QUEBEC Hydro-Electric Commission increased capacity at its Beauharnois Generating Station on the St. Lawrence River.**





and distribution mileage by 96 miles and 27 miles respectively. The total of 69,545 customers is now served by the Company, of which 11,245 are farm customers.

The Lower St. Lawrence Power Company has not made any recent additions to its generating capacity, and none are contemplated for the present. It is proposed to tie-in their network to the Quebec Hydro submarine cable across the St. Lawrence River sometime in 1954, at a point near Les Boules, Quebec. Two 1,600-hp. diesel engines, each driving a 1,250-kva. generator were put in service in January 1952; four diesels of this type are now in service. The construction of a 66-kv. 30-mile transmission line between Price and Matane is contemplated for 1953-54 for connection to the proposed submarine cable terminal. Some 30 miles of distribution lines were completed during the year. By the end of September, approximately 5,916 farmers were being supplied with electrical service by the Company.

The MacLaren Quebec Power Company began construction in May of a new storage reservoir at the outlet of Kiamika Lake, and it is expected that it will be completed in the fall of 1953, in time to impound the 1954 spring run-off. The capacity of the reservoir will be 332,000 acre-feet of water, which will serve to provide a more constant flow on the Lievre River for the generating stations at High Falls and Masson.

The Quebec Power Company has completed and put in service in December a 66-kv. transmission line between St. Raphael and Montmagny, some 14 miles in length. Another 66-kv. line between St. Anne de la Pocatiere and St. Pascal, 17 miles in length, also was completed and placed in operation during the summer. The construction of a third 66-kv. transmission line between Quebec City and Valcartier over a distance of 14 miles is planned for the year 1953. Some 8,950 farmers are being supplied with electrical service by the Company.

The Gattineau Power Company continued the expansion of its distribution facilities, although its Hawkesbury system was sold to the Hydro-Electric Power Commission of Ontario. In the rural areas, 106 miles of line were completed during the year for a seven-year total of 1,631 miles; the Company now serves 8,313 farms. At 16 locations, new distribution substations were erected or the capacity of existing substations was increased, adding about 3,000 kva. to the distribution capacity of the system. A

new transmission substation of 15,000-kva. capacity at Dorion is under construction and is scheduled for completion early next year. Distribution voltages were increased on two systems in 1952, and the subtransmission voltage was raised to 26.4 kv. on three other systems. A new 26.4-kv. line is under construction from Dorion to St. Polycarpe.

The Quebec Streams Commission successfully maintained regulation of flow for power production and flood control on controlled rivers of the Province of Quebec through its extensive system of storage reservoirs. Preliminary studies of prospective waterpower developments were carried out on the Lievre River at Mont St. Michel, on the Pikauba River in Lake Kenogami watershed, on the Rupert and Broadback Rivers in James Bay watershed, and on the Puyjalon and Mecatina Rivers on the St. Lawrence North Shore. Favourable progress was made on the reconstruction of Dam C, at the outlet of Lake Chateaufort. Flood protection works were carried out on a number of rivers throughout the province.

### NEW BRUNSWICK

Installed capacity in the province was slightly increased by the replacement of a 2,400-hp. unit by one of 5,000 hp. in the

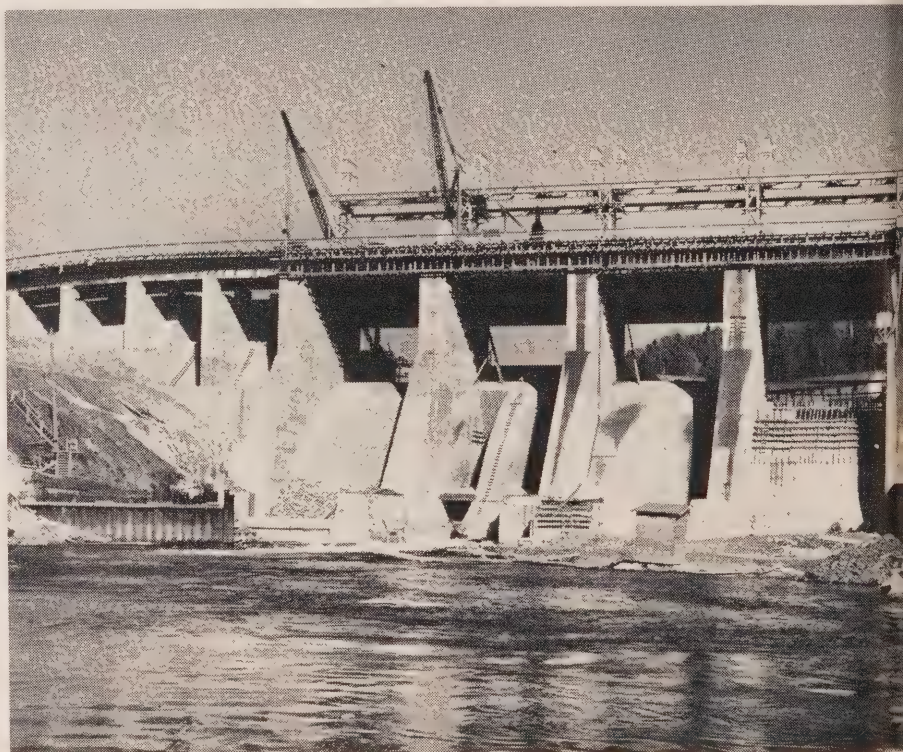
plant of the Maine and New Brunswick Electrical Power Company Limited on the Aroostook River.

The New Brunswick Electric Power Commission made good progress on its Tobique River development of 27,000 hp. in two units under 75-foot head, and it is anticipated that the plant will be completed in April 1953. The Commission is actively concerned with current investigations of the waterpower sites on the lower Saint John River, in conjunction with the international studies of storage possibilities which are being made in the headwater areas. In its steam plant at Grand Lake, the installation of a unit of 6,250 kw. was completed in April, and a unit of 18,750 kw. is being installed for 1953 operation. The Commission's 69-kv. transmission line from Tobique River to Woodstock is nearing completion, and 250 miles of rural distribution line were built.

### NOVA SCOTIA

The Nova Scotia Power Commission completed in November its Gulch development on the Bear River, consisting of one unit of 8,600 hp. under 225-foot head. Investigations and studies are now being made by the Commission covering a development of 5,000 hp. on the Mersey River at Lower Great Brook. For in-

**GOOD PROGRESS** at its Tobique plant during 1952 was reported by the New Brunswick Electric Power Commission. Scheduled for completion April, 1953, 27,000-hp. station has two units.







COMPLETED in November, 1952, Nova Scotia Power Commission's Gulch Generating Station has a total Capacity of 8,600 hp.

stallation in its steam plant at Cantleys Point, Trenton, a 20,000-kw. unit is on order, with completion scheduled for 1955. The main transmission lines of the Commission were extended by 99 miles of 69-kv. line, and 28 miles are under construction; 125 miles of rural distribution line also were built.

The Nova Scotia Light and Power Company Limited brought into operation in September its 4,000 hp. plant of one unit at 58-foot head at White Rock on the Gaspereau River; this new station replaces an older plant of 1,105 hp. so that the increase in capacity is 2,895 hp. The Company has under construction for 1953 operation a development on the Nictau River of one unit of 9,000 hp. under 400-foot head. In its steam plant at Halifax, a unit of 22,500 kw. is under installation for 1953 operation, and one of 27,500 kw. is on order for 1955 operation. The Company built 20 miles of 69-kv. line and six miles of 22-kv. line, with 18 miles of 22-kv. line under construction; 200 miles of rural line also were completed.

The Seaboard Power Corporation Limited has under installation for 1953

operation a unit of 18,750 kw. in its steam plant at Glace Bay.

#### NEWFOUNDLAND

The Newfoundland Light and Power Company Limited expected to bring into operation in December its new plant of 7,500 hp. in one unit under 176-foot head, at tidewater on the Horse Chops River, Cape Broyle. About four miles further upstream, the Company also was constructing for 1953 operation a second plant which will have a capacity of 10,000 hp. under 199-foot head. Investigations are being made towards a new development of about 20,000 hp. on Piper's Hole River at the head of Placentia Bay. At St John's, the Company completed the installation of a diesel-electric unit of 3,580 hp., for peak-load purposes and to provide additional power for Bell Island mining operations. Moderate additions were made to distribution lines.

The Anglo-Newfoundland Development Company Limited proceeded with the modernization of its two plants on the Exploits River. At Grand Falls, four 4,400-hp. turbines were replaced by 5,500-hp. units for an increase in capacity of 4,400 hp. At a later date, an addi-

tional four units each of 1,700 hp. will be replaced by units of 2,700 hp. At its Bishop Falls plants, the replacement of two 1,700-hp. turbines by units of 2,700 hp. is expected to be completed early in 1953, and the remaining four units of this type will be changed over at some future date.

The Union Electric Light and Power Company is planning the building of two plants, one on Georges Brook of 1,200 hp. and one on the Trinity River at Lockston of 4,000 hp.; these sites are both located in Trinity North near Port Rexton. The United Towns Electrical Company Limited has deferred until some future time a proposed plant of 2,000 hp. near New Chelsea, on the Avalon Peninsula.

In Labrador, the Iron Ore Company proceeded with a development at Menihik Rapids on the Ashuanipi River, although transportation was largely by aeroplane. The plant will have an initial installation of 12,000 hp. in two units under 34-foot head and an ultimate installation of 24,000 hp. It is anticipated that early in 1954 electrical energy will be supplied to the mining operations in the Burnt Creek and Knob Lake areas.





WHILE in Washington, D.C., recently, attending U.S. Federal Power Commission hearings on the proposed St. Lawrence Seaway and Power Project, three Commission representatives, Dr. Otto Holden, Assistant General Manager—Engineering; Chairman Robert H. Saunders, and W. Ross Strike, Second Vice-Chairman, standing, left to right, above, had the unexpected pleasure of an invitation to a complimentary dinner in honor of Louis K. Comstock (seated second from right) a prominent figure in the electrical industry. Guests also included top representatives of the National Electrical Contractors' Association and the International Brotherhood of Electrical Workers. Seated, left to right, are I.B.E.W. President D. W. Tracy, Charles C. Rathgeb, Sr., Canadian Comstock Company, who acted as toastmaster; Mr. Comstock an electrical contractor since 1893, and Robert McChesney, former President of the N.E.C.A.

## Challenging Problems

**F**ACED with challenging replacement problems, Ontario Hydro is giving increasing attention to the problem of manpower planning and development, John Carson, Manager of the Manpower Planning and Development Department of Ontario Hydro's Personnel Branch, told delegates at the recent A.M.E.U. Convention.

He said particular emphasis was being placed upon the necessity of finding replacements for supervisory and management positions, pointing out that the average age of Commission executives is approaching sixty.

"We are not unique among North American industry in facing this problem," Mr. Carson pointed out. "During the past decade, the number of opportunities for utilization of men possessing management skills has increased steadily."

This condition had made it necessary for the more senior members of management to undertake additional work loads. The situation was further aggravated by the fact that, during the depression years and World War II, few young men of promise were directed into the management structure. In some instances a breach in management succession had occurred, he continued.

### Matter of Active Concern

In the past, said Mr. Carson, Ontario Hydro had, as an engineering organization, laid great emphasis on the development of specialist and technical skills. Today, the management function made increasing demands upon administrative skill, a problem, to a great extent, the problem of all large-scale industries. Thus, the planning and development of manpower resources at all organization levels had become a matter of active concern for business generally.

"Consequently," continued the speaker, "it has been deemed important that we proceed with a comprehensive and co-ordinated program of manpower planning and development which could be applicable at all levels of the organization. Of necessity, it is a continuous process, which must be going on every day. It should be recognized as a vital part of management's normal function."

Mr. Carson outlined the four basic steps he felt necessary in any manpower planning and development program. These included organization analysis, manpower appraisal, manpower planning, and manpower development. He felt it important to analyse the work and responsibilities

assigned to all units, and to describe the jobs assigned to individuals.

He stressed the need for more knowledge of everyone in the Commission's service, particularly those at management level, or likely to occupy such positions in the future, including assessment of an individual's qualifications, review of his current performance, and appraisal of his capacity for growth and development. In manpower planning, Mr. Carson said, the knowledge of the work to be done and of the people in the organization must be followed by a plan to fit them together in order to have the right men in the right place at the right time.

### Twofold Program

Under the manpower development phase, the program became twofold: helping the individual to develop for purposes of his own growth and well-being, and, at the same time, working toward the fulfilment of manpower requirements. This involved guided development of individual employees through counselling, job rotation, special training, trainee positions, etc., and the development of group programs to meet widespread needs, i.e., administrative practice.

"The plan is designed to cover, eventually, all non-supervisory, supervisory and executive groups," stated Mr. Carson. "However, in order to cope with certain immediate problems, it has been necessary to introduce some steps of the program on a selective basis fairly quickly. At the same time, it has been recognized that the need for manpower development is not confined to any one group in the Commission."

Mr. Carson emphasized that supervisors at all levels would be involved in an analysis of their own organizational unit, a periodic review of their workforce, the preparation of manpower inventories and the continuous development of people.

### Line Management Function

While the Personnel Branch was organized to provide assistance in all phases of that program, it was clearly recognized that manpower planning and development was a line management function.

"Though the cost of the program will be considerable in executive time and energy, we are convinced that it is an inescapable expenditure, not only in terms of our pressing management replacement problem, but, in terms of such by-product results as improved morale, increased confidence in the organization, and more effective teamwork."—by Horace Brown.





DANIEL B. DETWEILER  
"The Committee of One"

***Honor Memory of Daniel B. Detweiler  
During Ceremonies Commemorating  
First Meeting at Kitchener in 1903  
which Preceded Launching of  
Ontario's Renowned Hydro Enterprise***

# GOLDEN ANNIVERSARY

**I**N the shadow of the steel tracery of Ontario Hydro's new transformer station at Petersburg, outside Kitchener, a large group of Ontario citizens gathered on February 17, 1953, to commemorate the deeds and the memories of men who met at Kitchener (then Berlin) 50 years ago to establish the principle of public ownership of power.

They had gathered to honor the memory of Daniel B. Detweiler, the famous "Committee of One," in the re-naming of the Commission's Petersburg Transformer Station as the "Detweiler Transformer Station,"—fitting recognition of a man who pioneered Ontario's great Hydro enterprise.

The commemoration ceremonies were under the joint sponsorship of the Ontario Municipal Electric Association, the Association of Municipal Electrical Utilities and The Hydro-Electric Power Commission of Ontario. They marked the 50th anniversary of the meeting that ultimately led to the formation of Ontario Hydro, when far-seeing citizens, representing Ontario municipalities, boards of trade, and manufacturers' associations, gathered in the basement of Kitchener's old Y.M.C.A. building on February 17, 1903, to hear

the report of the select committee appointed to investigate a co-operative plan for the purchase of power.

The commemoration event consisted of a dedication ceremony in the naming of the Detweiler T.S., laying of wreaths at the Detweiler Cairn at Roseville, Mr. Detweiler's birthplace, and a dinner in the Berkeley Room of the Kitchener Public Utilities Bus Terminal, the latter followed by a broadcast by Hydro Chairman Robert H. Saunders from the banquet room over Station CKCR and 22 other Ontario stations.

## **Guest of Honor**

Guest of honor at the ceremonies was Mr. Detweiler's 84-year-old widow, who charmed everyone with her reminiscences of the days when her husband rode his famous bicycle about the district spreading the "gospel" of Hydro.

Another honored guest was her son, J. R. Detweiler, who is associated with Ontario Hydro at its Head Office in Toronto, and who expressed gratification that the site had been chosen to bear his father's name, as it was "his home territory where his early supporters were found." Present also was another son, Milton, of Kitchener, and a daughter,

Mrs. O. P. MacLean, of Toronto. Telegrams were received from two other sons of Mr. Detweiler, George and Arthur, of Los Angeles, California, and from W. W. Snider of St. Jacobs, now in Florida, son of the chairman at the memorable meeting a half-century ago—E. W. B. Snider.

"It was here fifty years ago today," Hydro Chairman Saunders said in his broadcast after the commemorative dinner, "that representatives of a dozen or more municipalities, and members of boards of trade and chambers of commerce—men of private business—expressed the conviction which is perpetuated in Hydro's motto—'Dona Naturae Pro Populo Sunt'—'The Gifts of Nature Are For The People.' They laid the foundations upon which The Hydro-Electric Power Commission of Ontario was built, marking a turning-point in the history of this Province. Yes, my friends, these men of private business were the founders of this great publicly-owned utility. They decided that the greatest of all natural resources, electric power generated from the falling waters of our great rivers, should be developed for the benefit of all the people and not for the benefit of a few."

*(Continued on next page)*





A MEMORIAL PLAQUE reading "In commemoration of a meeting held on February 17th, 1903, as a result of which the formation of The Hydro-Electric Power Commission of Ontario was recommended to the Provincial Legislature. This historic occasion was the beginning of a successful era of public ownership of Ontario's province-wide electrical system," was presented by W. Ross Strike, Second Vice-Chairman, Ontario Hydro, on behalf of the O.M.E.A. (left). Plaque will be hung at the main door of Kitchener P.U.C. office. Right:—During a brief memorial service at Roseville, D. B. Detweiler's birthplace, where cairn in his memory is located, Mrs. Detweiler and Hydro Chairman Saunders paused for this photograph, which shows wreaths laid by O.M.E.A., A.M.E.U. and Ontario Hydro representatives as a tribute to one of Waterloo County's greatest sons.

### "Built Well"

Mr. Saunders pointed out that the men who met in 1903 truly built better than they knew. In 1910, he said, Hydro actually started active operation, entering into a contract for the purchase of 9,946 horsepower from Niagara. In August, 1917, Hydro acquired its first major power plant at Niagara, purchasing the Ontario Power Generating Station. In the year 1921, Hydro officially opened its first Commission-built power plant—the former Queenston-Chippawa development at Niagara, now known as the Sir Adam Beck-Niagara Generating Station No. 1.

After showing how Hydro's resources had steadily increased over the years, Mr. Saunders went on: "Today, 43 years after the start of active operation, we find that our resources total 4,495,100 horsepower, compared with 2,597,200 horsepower in 1945—an increase of 73.1 percent over a period of eight years.

"This momentous meeting of 1903 marked a turning-point in the history of Ontario. It was the first act which actually changed this province from an agricultural to an industrial economy. Those men of 50 years ago had great vision and great

faith in the future of this Province. Indeed, it was one of the men whom we honor today who said on many occasions: 'Where there is no vision, the people perish.' I believe the tremendous advance this Province has made over the years has exceeded the fondest dreams of these men who gathered in this city in 1903."

### Will Preserve Historical Sites

Mr. Saunders assured his listeners that Hydro would endeavour to play its full part in preserving the monuments, structures, sites and all-important historical symbols "which will tell the story of our wonderful heritage to our children and to our children's children."

At the dedication ceremony, where Mrs. Detweiler unveiled a wall map in a temporary control building at the mammoth Petersburg project as the station was officially renamed the "Detweiler Transformer Station," the Chairman for the occasion, Loftus H. Reid, Chairman of the Toronto Hydro-Electric System and President of the O.M.E.A., paid tribute to D. B. Detweiler.

"The name of D. B. Detweiler," said Mr. Reid, "will be remembered and

honored whenever anyone turns on an electric light in the Province of Ontario. He saw visions and dreamed dreams, and as a result of his self-sacrificing labors we have entered into a very rich heritage which makes Ontario one of the most prosperous areas in the world."

Brief religious services were conducted by the Rev. Ward Woolner, President of the Kitchener-Waterloo Ministerial Association, at both the dedication ceremony and the wreath-laying ceremony at the memorial cairn erected to the "Committee of One" at the Detweiler birthplace in Roseville.

### Permanent Memorial

A replica of a permanent memorial to the pioneer Hydro municipalities was unveiled by W. Ross Strike, Second Vice-Chairman of Ontario Hydro, and accepted by George Gordon, Sr., Vice-Chairman of Kitchener Public Utilities Commission. The plaque will be attached to the outside wall of the main office of Kitchener P.U.C.

"Those who have served on the Kitchener Public Utilities Commission," said Chairman Saunders, "especially deserve



our deepest appreciation. Over the years, they have built staunchly and well. Not only have they helped to provide low-cost power in the community, but Kitchener's Public Utilities Commission had estimated total assets up until the end of 1952 of \$7,487,641.49 as against liabilities of \$978,171.39, giving adequate assurance that low-cost dependable service will be always available to the citizens of Kitchener."

### Head Table Guests

Head table guests at the dinner, in addition to the speakers, were Rex H. Martindale, Sudbury, President of the A.M.E.U.; Dr. S. F. Leavine, M.P.P., Waterloo-North; Mayor E. B. Weber, Kitchener; E. M. Ashworth, retired General Manager of Toronto Hydro-Electric System and one-time Secretary of the O.M.E.A.; J. Albert Smith, former Second Vice-Chairman, Ontario Hydro; J. R. Detweiler, Toronto, and S. E. Preston, General Manager, Kitchener P.U.C.

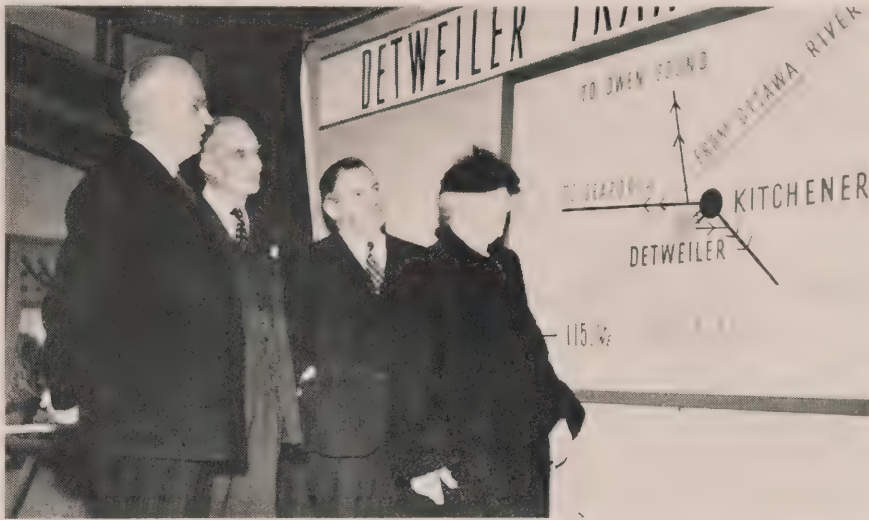
Among utilities leaders attending were E. V. Buchanan, retired General Manager, London P.U.C., and an associate of Sir Adam Beck; A. W. Bradt, General Manager, Hamilton Hydro-Electric Commission; Mrs. Marjorie Hamilton, Barrie, member of the Ontario Hydro-Electric Advisory Council; Harvey Hawke, Galt, former O.M.E.A. President and another staunch supporter of Sir Adam Beck; D. P. Cliff, Dundas, Secretary-Treasurer, O.M.E.A.; C. K. Merner, New Hamburg, retiring President of District 6 O.M.E.A., and M. W. Rogers, Carleton Place, Past President, A.M.E.U.

Also present were other municipal Hydro officials from Kitchener, Waterloo, St. Thomas, Stratford, Woodstock, Thorold, St. Marys, Paris, Galt, Guelph, and many other Ontario points.

—by Horace Brown.



VIEW of Ontario Hydro's transformer station at Petersburg near Kitchener which has been renamed Detweiler Transformer Station in memory of the Hydro pioneer. New plant will serve district through which Detweiler rode his bicycle 50 years ago to promote publicly-owned Hydro system. When completed it will be one of the largest of its type.



MRS. D. B. DETWEILER, widow of "The Committee of One," looks at the wall map which she unveiled at the dedication ceremonies when the transformer station was named in honor of her late husband. Looking on, left to right, are Loftus H. Reid, O.M.E.A. Pres., Rex H. Martindale, A.M.E.U. Pres., and Hydro Chairman Robert H. Saunders.



MRS. DETWEILER charmed the large audience which witnessed the dedication ceremonies at the new transformer station with her reminiscences of the days when, as she said, she felt like the "mother of Hydro," while Loftus H. Reid, extreme left, who acted as chairman, her son, J. R. Detweiler, centre, and Chairman Saunders, right, smiled broadly.



SEATED, appropriately enough, under a portrait of Sir Adam Beck, two members of a prominent Kitchener family, A. L. Breithaupt, left, and Ald. Fred Breithaupt, uncle and cousin of His Honor Louis O. Breithaupt, Ontario's Lieutenant-Governor, discuss progress of city and district.



# SPIRITED DEBATES FEATURE O.M.E.A. SESSION

WITH Loftus H. Reid, President, in the chair, and W. E. Theaker, of Paisley, officiating as Chairman of the Resolutions Committee, sixteen resolutions bearing on Hydro affairs, and three of a congratulatory nature, were presented at this year's annual convention of the Ontario Municipal Electric Association. With respect to most of them, the recommendations of the Resolutions Committee were approved by the delegates. In a few cases, however, they evoked widely-divergent opinions and were the subject of lively debate.

The first in this category came from the Directors of District No. 6. It called for new provincial legislation which would give the Hydro municipalities the right to enforce payment of arrears of rates and charges by a lien on customer properties. It also suggested that all tax collectors be required to advise the municipal utilities in advance of all property transfers.

The Resolutions Committee had found the policy involved too complicated for a definite decision, pro or con, and recommended reference to the O.M.E.A. executive for further consideration. This, too, was the final decision of the delegates, but not before a large number had been heard who voiced antagonism to the ideas conveyed by the resolution and obviously favored its defeat.

## No Leaning For Liens

"It looks to me like a dangerous business," pronounced Bert Merson of the Toronto Hydro-Electric System. "It is a pretty severe act to place a lien on property so that we can collect debts."

Mayor W. C. Nelson of Sarnia expressed the opinion that the method of transferring property in this province was "something out of the Dark Ages," and that it would be impossible for any Hydro commission to keep a reliable record of it. In any event, he could see no occasion for liens on property. He thought any well-organized utility should be able to collect its debts without recourse to such procedures.

"A great deal of tenant property would be involved," submitted H. Walter of Brockville, "and it would not be right to penalize the landlords in this way."

## Want F.S.D. Policy Clarified

District No. 6 also asked delegates to support a resolution for clarification of the policy of the Frequency Standardization Division of Ontario Hydro with respect to the surveys made as the program advanced. It was alleged that the Commission, at first, encouraged the taking of inventories by local commissions and contractors, but was now turning this work over to the general contractor, the Canadian Comstock Company. There was no objection, delegates supporting the resolution pointed out, to the way the work was carried out, provided a constant policy were maintained. As it was, they believed that some financial loss and confusion had been occasioned to local commissions and contractors.

D. P. Herring, Sarnia, speaking to the resolution, thought that in his district, where the changeover to 60-cycle had been completed, there had not been enough all-round co-operation. That, he



believed, was the trouble, rather than any intention to effect arbitrary changes without consulting the municipalities.

A. J. Girdwood of Guelph said that there had been a very considerable improvement in his municipality since the resolution had been framed, and the matter had been drawn to the attention of the Commission. He was not, however, in a position to speak for other municipalities, he said.

After a number of other delegates had been heard, it was decided to refer the resolution to the executive committee for continuing attention.

## "Who Pays The Piper How Much?"

A spirited debate, not unmarked by humorous passages, was evoked by a protest resolution from District No. 5





**LARGE AUDIENCE HEARD CHAIRMAN SAUNDERS ANNOUNCE REBATE OF \$1,879,780.54 TO MUNICIPALITIES.**

wherein it was claimed that the cost of the frequency standardization program was now being borne, as far as the municipalities were concerned, by the Niagara division of the Southern Ontario System alone.

"The mathematics I learned at school seem to be completely out of line with the frequency standardization mathematics," remarked A. C. J. Franklin, Mayor of St. Catharines. "What we are asking is merely adherence to the original intention as submitted to the O.M.E.A. when the Stone and Webster and Clarkson Gordon reports were presented."

Delegate Walter of Brockville and others from the Eastern Ontario municipalities thought there was a good deal of confusion with respect to what the finan-

cial contribution of the 60-cycle municipalities to the standardization program should be. As most of the delegates from both the East and West voiced similar opinions, it was decided to refer the resolution to the executive committee, with the hope expressed that there would be a clarification of the situation.

#### **Lighting Symbolic of Christmas**

Two resolutions forwarded to the Resolutions Committee by District No. 4 went down to defeat, but not before opinions for and against them had been emphatically expressed.

The first of these dealt with Christmas display lighting, and set forth that it was economically unsound to supply facilities for the carrying of the extra electrical load involved. Legislation was

suggested prohibiting outdoor Yuletide displays during peak load periods.

A storm of protest immediately arose.

"For goodness sake, let us keep our hands off the Santa Claus stocking," said Bert Merson of Toronto, and from every part of the floor delegates stood up, eager to voice remonstrance.

K. Pelton of Brockville attacked the resolution from a graver point of view, holding that the lighting displays were part of the symbolism which signified belief in all that Christians stood for, and that their arbitrary exclusion would be unthinkable in Canada. He received a good deal of support, as did also Dr. Charlotte Whitton, Mayor of Ottawa, who, taking a less serious view, nevertheless opposed the suggested legislation,

*(Continued on next page)*



# Spirited Debates Feature O.M.E.A. Resolutions Session

expressing the belief that it was a matter for "local option."

When the counter-barrage quieted down, Dr. V. S. Wilson, Chairman of Etobicoke Township Hydro-Electric Commission, who had been instrumental in bringing in the resolution, returned to his guns. He intimated that it was not the intention of the resolution to suggest interference, in any way, with the Christmas spirit. Experiences in the Kingsway district west of Toronto had shown, however, that outside displays during the festive season made it difficult to meet load demands during peak periods. There was not opposition, in fact, there was the fullest approval, to indoor Christmas trees and any lighting in stores and houses that might help to symbolize the true spirit of the festival.

The majority of the delegates, however, believed that Hydro should encourage outdoor as well as indoor displays during a season when tradition called for every possible external manifestation of rejoicing.

## Municipal Debentures Debated

Dr. Wilson was also a chief supporter of the second resolution which asked for Provincial legislation permitting municipal Hydro commissions to market their own debenture issues. He said that he felt there were times when it would be an advantage for the local commissions to be able to float their own bonds. Other proponents of the idea were W. P. Bolton, Windsor, Mayor Roland Mott, Riverside and Mayor W. C. Nelson, Sarnia.

When the meeting called for an explanation of the Resolutions Committee's opposition, M. J. Elliott, Chairman of Bowmanville P.U.C., who was associated on the Committee with Mr. Theaker, stated that, while there were some municipal commissions in a financial position to provide guarantees for debenture issues, there were a large number which were not. In any event, the Resolutions Committee were opposed to it in principle.

Dr. Whitton thought that, if the resolution were entertained, it would strike at the very basis of municipal solvency. In effect, the people themselves would have to guarantee the bonds, and she did not see how any responsible municipality would agree to a utility pledging the people.

Delegate Herring of Sarnia said that he thought the resolution embodied the democratic idea which had found birth in the wrestling of the Magna Carta from a reluctant king. Dr. Whitton hastened to remind him that it was the barons of England who had forced King John to sign on the dotted line at Runnymede in that far-away summer of 1215. As far as the people were concerned, the benefits of democracy, as conceived of today, were not enjoyed for many centuries thereafter.

On this historical note the debate concluded, and, by a substantial majority, the resolution was defeated.

A detailed report of the action taken on each of the resolutions is presented herewith:

## Resolutions and Disposal

### From District No. 6

**Resolved**—That the Ontario Hydro and the Department of Municipal Affairs be asked to institute controls, through the municipalities, to give a greater measure of protection to the public and Hydro Utilities from faulty erection of television aerials. (Carried).

**Resolved**—That the Ontario Hydro be asked to incorporate Kitchener in the naming of a project in recognition of the part played by D. B. Detweiler and E. W. B. Snider in the founding of Hydro. (Referred to Ontario Hydro).

**Resolved**—That this district ask for a clarification of the manner in which the H.E.P.C. of Ontario has changed the Frequency Standardization Division policy, first encouraging the advanced frequency standardization by local commissions and contractors and now turning the making of surveys over to Canadian Comstock Company. (Referred to Executive Committee, O.M.E.A. for continuing attention).

**Resolved**—Whereas it is felt that Section 72 of the Power Commission Act and Section 30 of the Public Utilities Act, which concerns the enforcement of payment of arrears of rates and charges, does not afford any reasonable protection to the utility supplying the electric service;

Therefore be it resolved that this district executive request the O.M.E.A. Executive to seek legislation, amending the present Act so that municipalities are given a lien on property which

can be made effective. Also that all tax collectors be required to advise the utilities Office in advance of all property transfers. (Referred to Executive Committee, O.M.E.A., for further discussion).

**Resolved**—Whereas this district does not feel that the Hydro Advisory Council, as appointed, has served the intended purpose and does not feel that they properly represent Hydro Commissions; Therefore be it resolved that the Advisory Council be reduced to five members and they be elected annually by the O.M.E.A. Also that this Advisory Board meet at least four times a year with the H.E.P.C. of Ontario. (Defeated).

### From District No. 8

**Resolved**—That the H.E.P.C. be requested to consider a low or special commercial and power rate for the electricity used in ball parks, skating rinks, etc., where these places are being operated on a non-profit basis for youth activity. (Referred to Rates Committee).

**Resolved**—Whereas the O.M.E.A. requested the formation of the Electric Service League of Ontario and agreed to support its activities in the field of adequate wiring and, Whereas, the Ontario Commission, at the request of the O.M.E.A. is contributing to the work, and, Whereas The Electric Service League proposes to form industrial councils throughout the Province to develop adequate wiring activity; Therefore, be it resolved, that District No. 8, O.M.E.A. reaffirm its support of the League's work and requests the O.M.E.A. to further support the League by asking municipal commissions to foster adequate wiring promotion in their municipality and to encourage their Managers or Superintendents to actively participate in local Service League Industrial council activities. (Carried).

### From District No. 5

**Resolved**—Whereas the O.M.E.A. has received the assurance of H.E.P.C. that the cost of Frequency Standardization would be borne by the entire Southern Ontario System and Whereas, the H.E.P.C. Blue Book indicates that the cost of Frequency Standardization is now being borne by the Niagara System alone;

Therefore, be it resolved that District No. 5, strongly protest this change, and requests that the method of payment for Frequency Standardization



be as originally intended and as submitted to the O.M.E.A. for approval when the Stone and Webster and Clarkson Gordon reports were presented. (Referred to Executive Committee, O.M.E.A.).

#### From District No. 4

**Resolved**—Whereas outside Christmas display lighting is of a temporary nature and therefore it being economically unsound to supply facilities to carry this load, and Whereas, this added load occurs during both the H.E.P.C. of Ontario and municipal peak load periods, and Whereas, interruptions in service, due to overloading, may cause inconvenience to a great number of families during the Christmas season;

Be it, therefore, resolved, that our executive be instructed to seek legislation prohibiting Christmas outdoor display lighting during peak load periods. (Defeated).

**Resolved**—Whereas our municipal Hydro Systems are revenue producing and self sustaining, and Whereas financing of Hydro development now depends on the financial status of municipal councils, which may have had their borrowing power impaired by the extent of financing necessary for other municipal services, and Whereas a substantial saving in interest rates and

therefore operating costs can be effected and reflected in lower rates to Hydro Users;

Be it, therefore, resolved that our executive be instructed to seek Provincial Legislation permitting debentures for Hydro purposes, to be marketed by the local commission concerned. (Defeated).

#### From Toronto Township Hydro-Electric Commission

**Resolved**—That the O.M.E.A. express its deep appreciation to the Dominion Government, the Government of the Province of Ontario, and especially to the Chairman, Commissioners and Officers of the H.E.P.C. for the progress made toward carrying out the St. Lawrence Seaway and Power Projects, that the Association assure them of its continued support to this end, and that the Association suggest that representation from the Association be included in any organization established to carry out the works necessary in the Province. (Carried).

#### From Carleton Place Public Utilities Commission

**Resolved**—That the O.M.E.A. should compare the costs of production of power by the H.E.P.C. with other utilities serving large areas in the United States and Canada. (Referred

to Executive Committee, O.M.E.A., for study).

**Resolved**—That the Rates Committee, or other appropriate Committee, or division of the H.E.P.C. be asked to study the present method of allocating distribution costs to municipalities with the purpose of arriving at a more equitable basis than the present method of determining distribution costs on the basis of distance from distribution centres. (Referred to Rates Committee).

#### From the O.M.E.A. Board of Directors

**Resolved**—Whereas it is the policy of the Department of National Revenue to forego the payment of sales tax on transformers 2200 volts to 440 volts when purchased by private industry for power purposes, and Whereas our local Utilities are not relieved from payment of sales tax on the above type of transformer;

Be it resolved, therefore, that we appeal to the Department of National Revenue to so amend their regulations, to permit a public utility freedom from sales tax on transformers, in the same manner, and to the same extent, as is now enjoyed by private industry. (Carried).

**Resolved**—Whereas it is the proclaimed policy of the H.E.P.C. to limit a local

*(Continued on next page)*

## AMONG THE SPEAKERS



**MAYOR DR. CHARLOTTE WHITTON**  
Ottawa



**M. J. McHENRY**  
Ontario Hydro



**D. P. HERRING**  
Sarnia



## Spirited Debates

utility's revenue, through its rates, to no more than 5 percent of revenue over normal operating costs, and Whereas this policy, in view of increasing costs being still the rule rather than the exception, could mean a year's operation with little or no surplus revenue, thereby necessitating constant issues of debentures to finance all capital construction and expansion; Be it resolved, therefore, that we appeal to the H.E.P.C. of Ontario to modify their policy so as to permit a more reasonable amount of capital plant betterment out of current revenue. (Carried).

**Resolved**—Whereas this Association has, from time to time over the past years, recommended to the Provincial Government that they institute a system whereby electricians would be licensed in the Province;

Be it resolved, therefore, that we reaffirm our desire in this respect, and do hereby again petition the Provincial Government to adopt legislation that would require all electricians, making electrical installations in the Province of Ontario, to take out a provincial license so to do, and that a copy of this resolution be forwarded to Premier Frost, the Honourable Mr. Daley, Provincial Minister of Labor, and Mr. Dunbar, Provincial Minister of Municipal Affairs, requesting that the necessary legislation be enacted. (Carried).

### Resolutions of Appreciation

Be it resolved that this Association go on record as expressing our appreciation to the Public Relations Division of Ontario Hydro for the displays so skilfully arranged, and other help and co-operation in planning this Convention. (Carried).

**Resolved**—That we extend our appreciation to the Editor and Staff of *Hydro News*, who have rendered praiseworthy service to our Association during the year. (Carried).

**Resolved**—That this Association go on record as expressing our appreciation of the help and co-operation of the Royal York Hotel, the other Toronto Hotels which assisted in accommodating our delegates, the Press and the Entertainment Committee, which have added so greatly to the success of our Convention. (Carried).

—by H. M. Blake.

# Pension Plan Gains Ground

**I**NCREASING interest is being shown in the Municipal Hydro-Electric Pension and Insurance Plan, according to the report presented by the Committee Chairman, P. R. Locke, at the annual O.M.E.A.-A.M.E.U. Convention. Mr. Locke reported on the Plan to O.M.E.A. delegates, while R. S. Reynolds gave the report at the A.M.E.U. sessions.

"Last year," Mr. Locke stated, "we reported in detail on the new Supplementary Plan, which is designed to provide more adequate pension for those retiring in the distant future, as well as including methods by which persons going on pension immediately may be better provided for, and also for the establishment of minimum pensions."

As far as the Supplementary Plan was concerned, the Committee reported that up to the end of 1952, 13 local commissions and their employees had taken advantage of its added benefits. Of these, six had provided for a minimum pension—three setting it at \$85 per month, two at \$100, and one at \$125. One commission had adopted a minimum pension of \$85 a month without taking the other features of the Supplementary Plan.

### Studied Several Features

The Committee, which, in addition to Mr. Locke, includes A. B. Manson, Vice-

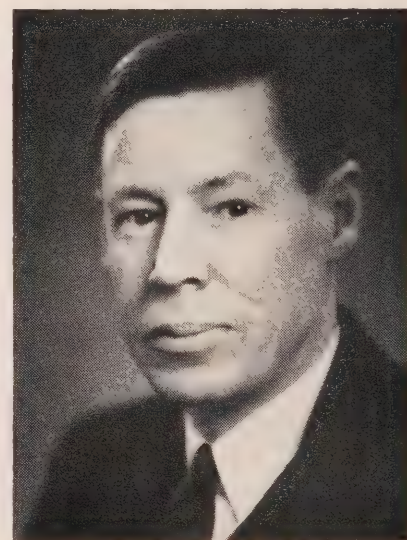
Chairman; R. S. Reynolds, Director, and Bertram Merson, Secretary-Treasurer, gave attention during the past year to the problems involved in making the Plan applicable to different conditions. It studied several features which it hoped would prove of interest both to the commissions and their employees now covered by the Plan, and to those commissions which, at present, have no pension provisions for their employees.

It was the desire of the Committee, the report set forth, to render all possible service to commissions wishing to enter the Plan, and it would be glad to arrange for a representative to explain its operation to them. This invitation to discussion was extended also to the commissions which had adopted the Plan, in order to ensure that all its features should be thoroughly understood, and its full benefits enjoyed by those entitled to them.

The report showed that during 1952, three new municipalities had entered the Plan, bringing the total to 111. Employees covered numbered 5,200. The total insurance in force was close to \$20,000,000. Total pensions enjoyed by 374 participants amounted to \$17,317 per month. In 1952, there were 47 deaths and a total of \$162,590 was paid in insurance.—By H. M. Blake.

## ELECTED HONORARY MEMBER

**I**N recognition of his outstanding contribution in the field of concrete technology and manufacture, R. B. Young, Associate Director of Research, Ontario Hydro, has been awarded an honorary membership in the American Concrete Institute. Announcement of his election to honorary membership was made at a luncheon during the Institute's recent annual convention in Boston at which Mr. Young was a guest of honor. Associated with the Commission in positions of increasing scope and responsibility since his graduation from the University of Toronto in 1913, Mr. Young is a Past President of the Institute in which he has been most active. He is the author of several important papers and articles on the subject of concrete and has been responsible for initiating many important and unique applications of concrete in connection with the Commission's operations.



R. B. YOUNG



# Paper Deluge

NEW types of office machines have increased the volume of records being maintained by many organizations today. This has led to the establishment of control systems defined as records management programs.

These observations were highlights of a paper on "Records Management" presented by R. N. Beattie, Records Manager, Ontario Hydro, at the recent O.M.E.A.-A.M.E.U. Convention.

Mr. Beattie pointed out that the Commission had instituted a records management program just over a year ago. A digest of his paper follows:

The Commission's plan is based on the premise that records management means far more than supervision of filing. It means control of the creation of records; the distribution of records; the use of equipment for creating, handling, and storing records, and the ultimate disposal of records. Records management is, therefore, concerned with efficient and economical communication, and with the provision of adequate reference material for every employee of the Commission who needs such material.

From the beginning it was decided to adopt a very broad definition of records; information recorded in any form, on any medium, and held for any purpose. Thus, correspondence, reports, drawings, prints, publications, photographs, recordings, etc., are all records.

## Many Locations

Because of the size of the Commission's operations and the dispersal of its offices throughout Ontario, its system must be based on centralized control of records held in a large number of widely-separated locations. Several control instruments have been devised:

1. A system of records centres is being established whereby every Commission record will fall within the responsibility of a particular records centre and of the Commission employee in charge of that centre.
2. A general subject index, modelled upon the Dewey decimal system, has been devised and will ultimately be used wherever records can be filed by subject or indexed by subject.
3. The preservation or destruction of

records is controlled through retention schedules prepared by Records Management in co-operation with the department and approved by the Commission.

4. A small staff of supervisors and clerks in the Records Management Department is available to supervise, instruct, and assist the clerks in the various records centres.
5. Standard Records Procedures have been produced by the Records Manager and approved by the Secretary. These have been distributed to all employees responsible for the preservation of records.
6. A manual of records procedures is produced for every records centre at the time it is brought under control.
7. Periodic audits of records centres will be performed by Records Management to ensure that responsibilities are being discharged efficiently and economically.
8. Records Management is co-operating closely with the Forms Control and Methods Section to control both the creation and the retention of numbered forms.

## Control at Origin

A good records management program ought to begin with control of records at the point where records originate. Much of the material held in filing cabinets not only should never have been filed but, in many cases, should never have been composed. There is perhaps some danger in going overboard in favor of birth control for records. Records are extremely important for any business, and an organization's records correspond to a person's memory.

However, there is no point in keeping records unless a system is maintained that will make them readily available when required. That is why Ontario Hydro has adopted a general subject index. That is also why it was decided to have comprehensive retention policies. There is little point in keeping records according to an elaborate system if there is no means for weeding out useless records.

## Studying Microfilm Possibilities

The Commission is also particularly interested in the application of microfilm-

ing to its records management program. Extensive use of this process for transferring Commission records was adopted more than two years ago. A great deal has been said and written about microfilming in recent years, but the best of it boils down to certain conclusions. Microfilming is not the cheap and easy answer to every records problem. It has wonderful space-saving possibilities. It can provide excellent security against loss, obliteration, or destruction of original records. Sometimes it can increase the speed and cut the costs of clerical procedures. But as a space-saver, microfilming must compete with low-cost records storage centres.

Generally speaking, if records are to be held for from one to three years, it is best to retain them in their original form, and in current files. If material is to be held for periods up to 12 years, it should be transferred at the end of the active reference period to some low-cost storage centre. Records which must be retained for more than 12 years, or permanently, should be retained in their original form during the active reference period, and then be transferred to microfilm and destroyed.

An efficient and economical microfilming program must be preceded by the establishment of a sound retention policy. Once the retention schedules are established, it should be relatively easy to decide which records are good candidates for microfilming.

## Municipal Records

What can records management mean to a municipal electrical utility? Many Ontario utilities have been in business from 30 to 40 years and must have accumulated a great many records in that time. Speaking generally, responsibility for the preservation of records ought to be placed as high as possible within an organization. When possible, the supervision of methods and procedures, and the control of forms ought to be closely coordinated with records management.

A municipal electrical utility is probably obliged to keep more records longer and in better shape than a private business of comparable size because the relationships between the utility and its customers are continuous, and on a long-term basis, and because some of its records should be kept available for a long period for public purposes. Municipal electrical utilities might be able to arrive at economical solutions for their records storage problems by entering into co-operative arrangements with other municipal bodies to store their records in municipal records storage centres or archives.



# SUCCESSFUL YEAR

## ***Almost 1,000 New Members Added to Ranks of Association of Professional Engineers***

**R**ANKS of Canada's largest professional body, the Association of Professional Engineers of Ontario, were augmented by nearly 1,000 new members during 1952, O. D. Johnston, P.Eng., retiring President announced in making his final report at the A.P.E.O.'s annual meeting in Toronto on January 24.

In describing 1952 as a "most successful" year, he told the 1,200 engineers who attended the meeting that the Association had managed to illustrate more clearly the work of the professional engineer in Ontario, and to promote new legislation aimed at standardizing registration across Canada.

During the past year, a uniform schedule of minimum salaries had been adopted by the professional engineering bodies in British Columbia, Ontario, Quebec and Nova Scotia, and closer co-operation was being encouraged between the provincial associations, Johnston added.

### **Newfoundland Licensing Body**

Among the highlights of 1952 was the formation of a licensing body for engineers in Newfoundland.

"This country has entered into an era of unparalleled expansion which has thrown an increasing responsibility on each member of our profession," Mr. Johnston said. "It is the engineer who has a direct hand in the building of our new industries and in the expansion of those already established. I am happy to say that the general public is becoming more conscious of our importance."

He called upon professional engineers to take a greater part in community affairs and "help to strengthen our democratic way of life." Canada's national growth had only become possible through men of vision, initiative and independence and the future belonged to those who prepared for it.

It was his firm conviction that what the engineering profession contributed both to itself and to the community could be the most important factor in the engineer's individual success, Mr. Johnston said.



**CHIEF FIGURES** at the recent A.P.E.O. annual meeting were, left to right, retiring President O. D. Johnston, P. Eng., Sir Robert Watson-Watt, one of the world's foremost radar authorities, guest speaker, and 1953 President J. Herbert Smith, P. Eng., chatting at reception.

### **Membership Over 14,000**

More than 900 engineers from all parts of the world applied for registration with the Association during 1952, it was reported during the meeting. The A.P.E.O. now has a membership of more than 14,000, of which 11,000 are registered members and the remainder students and undergraduates.

All applicants outside of those who graduate from recognized Canadian universities are referred to a Board of Examiners which considers the applicant's credentials. In past years the Board has assessed the graduation standing in engineering of 98 universities or colleges located in 22 countries exclusive of Can-

ada, the United States and the British Commonwealth.

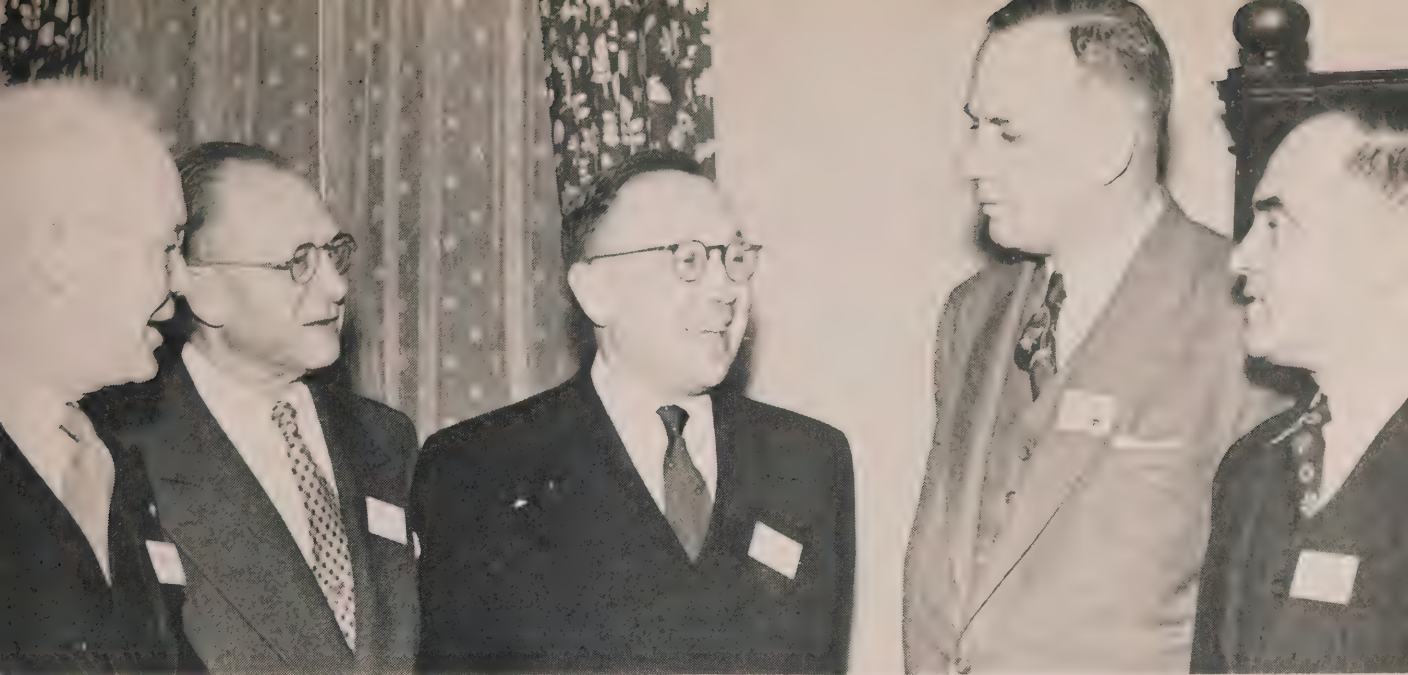
Examinations are held once a year for applicants whose qualifications do not meet the requirement. Last year, 121 candidates wrote examinations, 64 per cent of whom were passed.

The Association is spearheading a program aimed at producing a uniform syllabus of examinations used by all provinces. At present, each provincial association sets its own examinations. It is expected that the plan will be adopted by all provinces when Ontario, Quebec and British Columbia come to an agreement.

### **Urges Fresh Ideas**

Guest speaker at the meeting, Sir Robert Watson-Watt, 60-year-old dis-





ONTARIO HYDRO has three representatives on the 1953 Council of the Association of Professional Engineers, namely A. W. Murdock, Rate Study Engineer; J. R. Montague, Director of Engineering, left, and R. C. McMordie, Building Engineer, second from right, who were noted discussing engineering matters with Sir Robert Watson-Watt, guest speaker, centre, and Dr. G. Ross Lord, Professor of Mechanical Engineering, University of Toronto, extreme right, who is Consultant to the Commission in connection with special hydraulic problems.

coverer of radar, urged industry to expend larger sums of money on developing fresh ideas and new techniques.

In speaking directly to members of the engineering profession, Sir Robert, who is playing a major role in directing the building of a network of radar stations across Canada's northland as a vital defence measure against possible air attack, declared that they should carry their education beyond the limits of their particular branch.

An engineer's education "must first make him a citizen, then an applied scientist, then a management engineer, with some of the qualities of an accountant, lawyer and judge, and also ensure that he develops a keen sense of ethics," he said.

#### Election of Officers

Succeeding Mr. Johnston as 1953 President of the Association, is J. Herbert Smith, P.Eng., of Toronto. Mr. Smith, 43-year-old Canadian General Electric Co., executive, is a native of Fredericton, N.B. Actively identified with the Association's efforts to attract young men and women into engineering, Mr. Smith has been a member of the executive council since 1943.

Mr. Smith's immediate colleagues on the newly-elected executive are Professor

W. L. Sagar of the University of Toronto Engineering Dept., 1st Vice-President, and J. R. Montague, Director of Engineering, Ontario Hydro, 2nd Vice-President. A total of 15 councillors (10 elected and five appointed by the Lieutenant-Governor-in-Council) three for each of the five branches of engineering makes up the 1953 council.

These include: N. A. Eager, Hamilton; Dean D. S. El'is, Queen's University, Kingston; and R. C. McMordie (Ontario Hydro), Toronto (civil); G. W. Ames, Sarnia; C. T. Carson, Walkerville; and G. R. Smye, Hamilton (Chemical and Metallurgical); W. J. Gilson, R. V. L. Handforth and A. W. Murdock (Ontario Hydro) all of Toronto (electrical); J. H. Fox, Dr. G. R. Lord, University of Toronto, both of Toronto, and L. C. Sentance, Hamilton (Mechanical and Industrial); M. W. Hotchkin, Kirkland Lake; W. A. Hutchinson, South Porcupine; and R. C. Mott, Falconbridge (mining). T. M. Medland is Executive Director of the Association, J. Murray Muir, Registrar and Secretary-Treasurer, and T. C. Keefer, Field Secretary.

#### Active Members

All three Ontario Hydro representatives on the 1953 Council have been

active members of the Association for several years. Mr. Montague, who has been associated with the Commission since 1922, is a graduate of the University of Toronto in Civil, as well as Mechanical and Industrial Engineering. This marks Mr. Montague's fourth year on Council, the last two serving as Councillor on the Mechanical and Industrial branch. Mr. McMordie, serving his third year on Council in the Civil Branch, is a graduate Civil engineer from the University of Toronto and holds the position of Building Engineer with Ontario Hydro. Mr. Murdock, also serving his third year on Council in the Electrical branch, is a native of Nova Scotia. A graduate in Arts of Mount Allison University, N.B., he received his Science degree in Electrical Engineering at McGill University, Montreal. Mr. Murdock joined the Commission after World War I. Formerly Assistant Manager of Personnel, he was made Rate Study Engineer, Consumer Service Division, in 1952.

In addition to the announcement of the election of officers, the Association's annual meeting was highlighted by the second art exhibition which included over 100 paintings in oils, water colors, and pastels, running the gamut from landscapes to surrealism, by members of the engineering profession.





R. H. MARTINDALE

## A.M.E.U. PRESIDENT'S REPORT

Reference was made to the commemoration ceremony held in Kitchener on February 17, 1953, marking the 50th anniversary of the original meeting which was "really the beginning of the

O.M.E.A., as well as the H.E.P.C. Later it also became necessary to have engineers, superintendents and staffs to build and operate the systems. This led to the founding of our Association."

### Report on Committees

The President highlighted his report of the year's activities by giving a digest of the accomplishments of the various committees in their varied and important studies and projects during the year.

The Accounting and Office Administration Committee had "the most successful operation" in its 20-year history. It was recommended that the work of Jack Cook, Windsor, Chairman of the sub-committee which arranged the annual meeting for the Niagara Falls-Windsor area, and George Phillips who headed up the newly-formed eastern group (Toronto-Ottawa area) receive suitable recognition from the incoming Executive "for their great assistance to local Hydro office staffs." Some 300 accountants, office managers and administration staffs of Hydro utilities attended the two conventions, Mr. Martindale pointed out.

Under the direction of the Employees' Relations Committee, four wage surveys had been conducted revealing valuable information both for the various commissions and employees. The surveys were divided into two groups:

Schedule A: for the municipalities with a population of 4,000 to 10,000;

Schedule B: those with a population in excess of 10,000.

"It is interesting to note," stated Mr. Martindale, "that every year there are more municipalities crossing the 10,000 line, showing the growth of our systems by population as well as power demand."

### New Merchandising Trend

A new merchandising trend is indicated by the fact that "there are, at present, some 30 commissions which have Hydro shops in connection with their main offices." Television, with its associated problems and possibilities, also is receiving special attention, he pointed out.

On the subject of rates, the President referred to the work of the Rates Committee which "made a study of the proposed changes in the standard interpretation of rates and the proposed method of billing customers."

Mr. Martindale paid tribute to the late Mr. Frank Plant, who at the time of his death was O.M.E.A. President.

"The O.M.E.A. suffered a great loss last November, in the sudden passing of Frank Plant. He had long been identified with public service in Ottawa, as Alderman, Mayor and Chairman of the Ottawa Hydro, and we will all miss him greatly at our gatherings."

The work of Secretary-Treasurer "Ron" Mathieson received "honorable mention" from the President. He cited several examples of the large volume of work handled during the past year.—By H. J. Anderson.

THE spirit of co-operation evident at all times between Ontario Hydro and the A.M.E.U. "as partners in the Hydro family" was strongly emphasized by Rex H. Martindale, A.M.E.U. President, at the recent annual convention held in Toronto.

Mr. Martindale, who has an outstanding record of 51 years as Manager of the City of Sudbury's electrical and water services, also stressed "the feeling of good will that exists between our sister organization, the O.M.E.A., and ourselves."

Reviewing the past year's achievements, he paid warm tribute to Hydro Chairman Robert H. Saunders who, he said, "will go down in history for his untiring efforts in promoting Hydro throughout the Province and latterly the St. Lawrence Development." Mr. Martindale also commended Dr. R. L. Hearn, General Manager and Chief Engineer, Ontario Hydro, for his "able administration and competent staff."

"The work of the A.M.E.U. increases yearly in size and importance," continued Mr. Martindale. "During the past year there have been 28 official committee meetings and 16 district meetings. In Ontario there are 126 different municipal Hydro men serving on A.M.E.U. Committees."





**M. H. Mackenzie**  
Ontario Hydro



**A. L. Furanna**  
London Public  
Utilities  
Commission



**J. R. Conrad**  
President  
S. and C. Electric  
Company  
Chicago, Ill.



**A. E. Fort**  
St. Marys Public  
Utilities  
Commission



**J. W. Suggitt**  
Ontario Hydro



# AMONG THE *Speakers*



# ANNEXATION PROCEDURES CLARIFIED

## M. J. McHenry Discusses Assumption of Rural Areas by Local Municipal Hydro Commissions

**G**ROWTH and expansion of urban communities in the Province often involves the annexation of adjacent areas served directly by the rural operating system of Ontario Hydro. Taking over these areas by local municipal Hydro commissions and utilities involves certain procedures which were clarified by M. J. McHenry, Director, Consumer Service Division, Ontario Hydro, at the recent joint O.M.E.A.-A.M.E.U. convention.

"A municipal corporation desiring to annex adjoining properties first seeks the approval of the Department of Municipal Affairs," Mr. McHenry explained. "When this approval has been granted, Ontario Hydro's Engineering Department proceeds to inventory the equipment in the area. Such an inventory is necessary because the system in the annexed area must be precisely described, and its cost separated from the cost of the rural facilities in the Rural Operating Area of which it forms a part. The Comptroller's Division then determines the accumulated depreciation based on such inventory statement."

Mr. McHenry pointed out that while the inventory was being prepared, the Commission's Regional Office arranged with the municipal system a mutually satisfactory date of transfer. The Regional Office was charged with the reading of customer meters for final billing by Ontario Hydro, and with the transfer of accounts receivable to the municipal system for collection. Every endeavor was made so that the inventory, costing, and approval of the Commission to sell could be completed, and the invoice with bill of sale sent to the municipality as soon as possible after the date of transfer—confirmed by a letter from the Regional Manager—was agreed upon.

Invoices, it was explained, were rendered on the basis of the actual cost of the distribution facilities at the time they were installed, less accrued depreciation,

plus the charges involved in valuation and transfer of property. Interest accrued at the rate of 5 percent on the invoiced amount from the date of transfer.

It was to be noted, Mr. McHenry said, that the invoice covered the inventoried lines up to the date of inventory only. Any construction work carried out by Ontario Hydro after the date of inventory would be accumulated at cost, and would be an additional amount, over and above the inventory statement.

### How Value is Determined

Basically, the valuation of annexed distribution systems was made up of the cost of the property assessed on the actual physical inventory at time of construction; an allowance for accumulated depreciation; a charge covering the cost of making the inventory and effecting the transfer, and an interest charge if payment of the invoice were delayed.

"It must be appreciated," Mr. McHenry observed, "that when the transfer of operation is effected, the municipal system immediately commences to collect revenue and corresponding revenue to the Commission ceases. Consequently, if the capital involved in the Rural System is not retired by payment of the invoice, a loss will be sustained by the Rural System."

In the past there had been some delay in making the valuation of these properties. In some cases this had been on the part of the Commission, and, in others, due to causes outside the control of the Commission. Mr. McHenry pointed out that it was recognized that such delays should be avoided and the procedure now set up had been designed to overcome them.

### Sinking Fund Reserve

Mr. McHenry made it quite plain that payment of Sinking Fund Reserve to the municipality on the properties annexed could not be made.

"There are two good reasons why the Ontario Commission should not pay over to municipalities any part of the Sinking Fund Reserve," he pointed out. "In the first place, when a bondholder loans money to the Commission he does so on the definite understanding that the cost of power will include a provision for a sinking fund reserve which in 40 years will be sufficient to repay the indebtedness. If any asset acquired with this money were disposed of, it would have to be replaced with a corresponding revenue-earning asset carrying with it the equity already paid in respect of the original asset it replaces."

He showed that this might entail a failure to meet the terms upon which Hydro bonds were now issued, impairing the Commission's excellent credit in the bond market with all attendant disadvantages, including higher interest rates.

"In the second place," said Mr. McHenry, "the sinking fund contributions as recorded in the Commission's accounts represent, in effect, ownership certificates corresponding to what would be common stock in a commercial corporation."

"You can well imagine how the credit of a commercial corporation would be damaged if it borrowed money from bondholders on the strength of the statement that such and such a percentage of its capital has been provided by the issue of common shares and that immediately following the issue of bonds part of the common stock was redeemed."

"The commercial corporation's bondholders are normally protected by a sound Trust deed. The Commission's bondholders are protected by Section 18 of The Power Commission Act. This section does not permit the use of sinking funds for a purpose other than the retirement of debt or the temporary investment of available funds."—By H. M. Blake.



# Protracted Battle

**W. Ross Strike Recalls Struggles  
to Establish Publicly-Owned Hydro  
Enterprise in Ontario**



W. ROSS STRIKE, Q.C.

**P**EOPLE in Ontario today have only to press a button or flip a switch, and there it is—low-cost Hydro power for the home, the factory or the farm! But it wasn't always like that. And it didn't come easily. A protracted battle was waged before the legislation was enacted which created Ontario Hydro.

Addressing the delegates at the recent annual convention of the Ontario Municipal Electric Association in Toronto, W. Ross Strike, Q.C., Second Vice-Chairman, Ontario Hydro, highlighted in masterful style the events leading up to the formation of this province-wide, public-ownership organization.

"When electricity began to be developed extensively and cheaply from hydraulic sources," Mr. Strike pointed out, "Ontario suddenly became power conscious. This was especially the case in the Niagara peninsula where the greatest waterfall in the world was parked practically at the front door."

First power developments at Niagara, the speaker said, had been carried out by private companies. It was the general opinion that the rates charged were too high and that primary consideration was being given to heavy load centres like Toronto. While the metropolis might, however, be favored in the amount of

electricity it was getting, it objected just as much as the smaller municipalities to the price it had to pay for it.

## C.M.A. Resolution

Voicing this general antipathy to high costs, the Canadian Manufacturers' Association on February 13, 1903, passed a resolution, which Mr. Strike judged of sufficient historical importance to be read verbatim to his audience.

He quoted as follows:—

"Whereas the natural gift of immense water power is a great national asset and should be of the greatest possible benefit to the mass of the people; and whereas private companies have secured charters for the development of such power and are creating enormous vested interests, and the citizens have no guarantee that the price charged for power by such companies shall not be out of all proportion to the cost of same; and whereas the obtaining of cheap power and light is of the utmost importance to the citizens and manufacturers of Toronto:

Therefore, be it resolved that the Toronto Branch of the Canadian Manufacturers' Association, while not endorsing any definite plan for the securing of cheap electric power, places itself on record as favorable to immediate action

on the part of the City before further vested interests are created, and pledges its support to any line of action by the City, either alone or in conjunction with other municipalities, that will guarantee electric power and cheap light to the citizens of Toronto for all time to come at the actual cost of same, or at a fixed percentage of profit upon the actual cash expended."

Before this resolution was presented, two public-spirited citizens—D. B. Detweiler of Berlin (now Kitchener) and E. W. B. Snider of St. Jacobs—had been moving spirits at meetings called to discuss the electrical situation. These men had made quite a team—"Detweiler a dreamer and idealist and Snider a practical man of affairs." They were soon to be joined by another—Adam Beck—who, Mr. Strike intimated, combined in one personality many of the attributes of both of them.

Adam Beck (later Sir Adam), made his first appearance at the Berlin meetings in the dual role of Mayor of London and businessman. He had come, he said, just to learn, "but," said Mr. Strike, "he led a movement to put teeth into the

*(Continued on next page)*



## PROTRACTED BATTLE

(Continued from previous page)

resolutions passed at the meeting. His was the flame that actually set fire to the heather."

On June 12, 1903, as recalled by Mr. Strike, the Ross Government passed a bill "to provide for the construction of municipal power works and the transmission, distribution and supply of electrical and other power and energy." However, the government assumed no financial obligation or guarantee. Said Mr. Strike: "They just threw the ball right into the hands of the municipalities and they scarcely knew what to do with it."

### Municipal Action

"On August 12th, 1903," continued the speaker, "sixteen municipalities met in Toronto and appointed a four-man Commission with power to add an electrical engineer. The four men were: Mr. Snider, Kitchener; Mr. Ellis, Toronto; Adam Beck, London; and Mr. Cockshutt, Brantford. The new Commission asked for the sum of \$15,000 to carry on investigations, provide staff, etc., and this was met by the municipalities on a pro-rata basis. London paid \$1,542, Toronto \$11,756; and the others proportionately. Little progress was made, however, beyond investigations as to costs, etc., before the Ross Government was defeated at the election held in 1905.

### Commission of Enquiry

Six months after taking office, the Whitney Government appointed a Commission of Enquiry to investigate the power question. The Ontario Power Commission appointed under the former Ross Government, of which Mr. Snider was Chairman and Adam Beck a member, was still functioning by preparing data for a full report to the Municipalities. Beck was now also appointed as Chairman of the Enquiry Commission along with P. W. Ellis of Toronto and George Pattinson, M.L.A.

Apparently, the painstaking report prepared by the Ontario Power Commission, or Snider Commission, was taken "in toto" by the Enquiry Commission, or Beck Commission, and adopted as its own with the result that Snider and Beck parted company and Snider practically retired from the Hydro movement. Mr. Ellis also resigned from the Beck Commission of Enquiry. These defections of prominent men, however, justified or not, did not deter Adam Beck.

At this time, it became quite apparent that the Ross legislation which placed all the responsibility on the municipalities could not be made effective, and Adam Beck stated very forcibly on many occasions that the municipal scheme was only possible if the province became the banker and gave direct provincial assistance.

### Public Opinion Calls For "Hydro"

After extensive organization and preparation, 1500 representatives of the municipalities and various organizations met at the City Hall in Toronto on April 11th, 1906, and there drafted a resolution:

"That the municipalities now present and represented in the City Hall, Toronto, having an urban and rural population of over 1,000,000 respectfully urge upon the Governor-in-Council of the Province of Ontario the necessity of safeguarding the people's interests by originating as a government measure, legislation enabling the Governor-in-Council to appoint a permanent provincial Commission with power to take, where considered by it advisable, the following action: The construction, purchase or expropriation of works for the generation, transmission and distribution of electrical power and light; to arrange with any existing development company or companies for power at a reasonable price, so as to be transmitted and sold by the government to municipalities or others; also to vest in it the powers necessary to enable it to regulate the price at which electricity shall be sold to all and every consumer, whether municipal, corporate or private."

This resolution was presented to the Government and quickly led to the creation of The Hydro-Electric Power Commission of Ontario.

The machinery was now set up and the next order of business was to make it work. In the Government itself, Sir James Pliny Whitney, the Premier, was whole-heartedly in favor of public ownership of water-power resources, "but," said Mr. Strike, "he was cautious in allowing Adam Beck, with his enthusiasm and impetuosity, a free rein. Other members of the Government were rather non-committal with a more or less watch-and-wait attitude, but there was very little actual hostility."

Mr. Strike went on to show how public opinion in the municipalities had waxed and waned as the public-spirited citizens, the special lobbies, and those on both sides went to work to inform the people according to their point of

view. Adam Beck had been here, there and everywhere.

Mr. Strike gave a colorful picture of Sir Adam.

"To the people who supported him and his ideas, he became a Knight in Shining Armor. To those opposed to him, he was the Devil Incarnate complete with horns and tail. There was no twilight in the thinking and actions of Sir Adam Beck. Everything and everybody was either bright as day and sunlight, or black as the darkest night. He always made the direct frontal attack armed with a battle axe. He had no use for either the rapier or methods of finesse."

As the voting took place in the various municipalities to set up their local systems, it became increasingly apparent that the public power supporters had won the fight with colors flying.

"It was very appropriate," concluded Mr. Strike, "that the first Hydro power was turned on at Berlin on October 11, 1910—more than four years after the legislation had been passed. It was fittingly a very impressive and joyous occasion as the hand of Adam Beck, held by the hand of Sir James Whitney, pressed home the switch. Other municipal openings followed at fairly regular intervals and Hydro was on its way."

In moving a vote of appreciation for Mr. Strike's illuminating address, H. O. Hawke of Galt suggested that it be printed and circulated among all the municipalities. The motion was seconded by W. S. Pettit of Brantford and received general acclaim.—by H. M. Blake.

## CSA ANNUAL MEETING

ANNUAL meeting of the Canadian Standards Association will be held in the auditorium, Engineering Institute of Canada, 2050 Mansfield Street, Montreal, April 21, 1953, at 10 a.m.

A new set of by-laws for the Association will become operative on that day and a board of eighteen directors will be elected. This board will be the new managing body of the Association.

The old main Committee, which has been responsible for many years for the approval and issuance of Specifications will be replaced by a technical council somewhat similarly constituted. The old Executive Committee, appointed by the main Committee, will disappear, and be replaced by the new Board of Directors elected by all the contributing and voting members.



# Great Tasks Ablly Performed

## O.M.E.A. President Loftus H. Reid Pays Tribute to Memory of Late Frank Plant

**I**F THE Ontario Municipal Electric Association were a military organization, this year's annual convention would have been ushered in with muffled drums and reversed arms. As it was, the delegates stood with bowed heads as reference was made to the passing of their 1952 President, Frank Henry Plant.

In moving words, Loftus H. Reid, who was appointed President after Mr. Plant's death and was elected by acclamation this year, paid tribute to his predecessor.

He referred to Mr. Plant's outstanding leadership in municipal and community affairs at Ottawa. For three years after the first world war, he reminded his audience, Mr. Plant had been returned as Mayor of the Capital City. Later, he had given his high talents and ability to the service of the Ottawa Hydro-Electric Commission. He had been its Chairman for a period of 12 years. In 1949, he was elected President of the Eastern Ontario Municipal Electric Association and, at the last annual meeting of the O.M.E.A., his long and faithful service had been crowned by the highest gift at the disposal of the Association.

### Birds of Passage

"Mr. Plant's sudden passing," said Mr. Reid, "reminds us that we are but birds of passage. Some who foregathered with us last year have gone out to return not again. We record our appreciation of their service and their fellowship, and to the families bereaved we tender sympathy, heartfelt and sincere." Mr. Reid stated that a floral memorial tribute had been sent to Mrs. Plant, with its delivery in Ottawa synchronized to the hour

when the meeting of the O.M.E.A. opened in Toronto.

Continuing, he drew attention in general terms to the work upon which the Association was engaged. That the O.M.E.A. had rendered valuable public service through a period extending over forty years, could not, he said, be denied, nor could there be any doubt as to its present and future usefulness. He pointed out that at the first recorded meeting of the Association, Sir Adam Beck had referred to the development of Hydro in Ontario as a "municipal power partnership."

Developing the theme of "democratic partnership" with Ontario Hydro, Mr. Reid referred to the services of W. Ross Strike, Q.C., Second Vice-Chairman of Ontario Hydro. He pointed out that Mr. Strike had been President of the O.M.E.A. at the time of appointment to his present office, and that he had continued to regard himself as representing the Association on the parent Commission. This position, Mr. Reid emphasized, had been confirmed by the Prime Minister of the Province.

### Protracted Negotiations

The speaker drew attention to the unprecedented program of construction upon which Ontario had been particularly active during the past five years. Superimposed upon this had been the protracted and delicate negotiations for the St. Lawrence Seaway and Power Project.

"While giving full credit to the splendid co-operation of the Governments of Canada and Ontario," said Mr. Reid, "we are all proud and duly thankful for the aggressive and effective leadership of On-



LOFTUS H. REID

tario Hydro's Chairman in this vitally important public service. To Mr. Saunders and his colleagues, Hon. George H. Challies and W. Ross Strike, as well as to Dr. Richard L. Hearn, Dr. Otto Holden, A. W. Manby and the entire staff of Ontario Hydro, we offer felicitations on great tasks ably performed."

In serio-comic vein, Mr. Reid suggested that "a measure of power conservation" should be applied by the Hydro Chairman to his own dynamic efforts. Physical and mental stamina, he pointed out, were not inexhaustible resources. No human mind and frame could be expected to operate all the time at full capacity.

The co-operation which has been so marked a characteristic of Hydro in Ontario was given a pleasing traditional touch when Mr. Reid referred to the commemoration ceremonies at Kitchener on February 17. Arrangements to honor the pioneers of Hydro, he pointed out, had been carried out under the joint sponsorship of The Hydro-Electric Power Commission of Ontario, the Ontario Municipal Electric Association and the Association of Municipal Electrical Utilities—symbolizing the teamwork which had overcome so many difficult problems and provided unsurpassed electrical services for the people of this province.—*by H. M. Blake.*





D. P. CLIFF

# MEMBERSHIP GROWING

**Total of 268 Hydro Municipalities  
Represented in O.M.E.A. During 1952**

**A**T the end of 1952 there were 268 Hydro municipalities represented in the Ontario Municipal Electric Association, according to a report presented by the Secretary-Treasurer, D. P. Cliff, at the recent annual convention in Toronto. This was an increase of 8 municipalities over 1951 and of 83 over the last ten years, he said.

During the past year, there were four regular meetings of the Association's Board of Directors and one special meeting.

In view of the growth of the O.M.E.A. and its expanding activities, Mr. Cliff stated that a meeting of all District Presidents and Secretaries would be held as soon as possible after the convention. Opportunity for discussions which would be of the greatest assistance to the Executive would thus be afforded.

## Report On 1952 Resolutions

An interesting and important feature of the secretary's report was a "follow-up" on the action taken to date on the resolutions passed at last year's annual meeting. It is given in its entirety here-with:

1. Resolution asking the Provincial Government and the H.E.P.C. to recognize the O.M.E.A. as the body through

which the H.E.P.C. should seek advice, was acknowledged by both parties;

2. Resolution requesting that the O.M.E.A. give consideration to having sub-dividers of property provide, at their own expense, an electrical distribution system and turn it over to the local utility, was forwarded to the H.E.P.C. to study and report. Acknowledgement was received with a request that the resolution be clarified as to its intent. It was pointed out that it was always dangerous to adopt a general policy to take care of special situations. There would also be grave complications in establishing a new rate schedule that would eliminate partial charges for capital construction since the capital costs in the sub-division would have been paid for in the cost of the houses;

3. Resolution asking legislation which would permit municipalities to accumulate reserves for conversion was forwarded to the H.E.P.C. The O.M.E.A. has been advised that legislation was not required, but, that the apparent purpose of the resolution could be a factor for consideration by the Commission in any municipal rate revision;

4. Resolution expressing the desire to have O.M.E.A. representation on the

H.E.P.C. was forwarded. No action has resulted;

5. Resolution requesting the Minister of National Revenue to remove the special excise tax on necessary home appliances was forwarded and the desired action has been taken by the Government;

6. Resolution protesting the lack of consultation with municipalities when the H.E.P.C. takes over rural customers being served by a local municipality was answered, and the H.E.P.C. agrees to fully inform the commissions affected before taking any action in this respect.

7. Resolution requesting the formation of a committee to propose ways of honoring long-service commissioners has been acted on and a committee report will be presented;

8. Resolution requesting that a uniform agreement for payments by a commission to the municipal corporation, in lieu of taxes, be established by the Department of Municipal Affairs was forwarded and the result is well known to all;

9. Resolution recommending to the H.E.P.C. that its grant to the Electric Service League be increased was acted on and the sum of \$25,000.00 was paid last year.—By *H. M. Blake*.



# MATTAWA JOINS "HYDRO FAMILY"

**M**ATTAWA, an important lumbering and tourist centre at the junction of the Ottawa and Mattawa Rivers some 36 miles east of North Bay, entered a new era on February 13 this year when it joined the "Hydro Family."

Marking this significant event in the town's history, Hydro Chairman Robert H. Saunders, accompanied by provincial, civic, and other Commission representatives extended an official welcome during addresses to 400 pupils of Mattawa public and high schools and 500 pupils of St. Anne's Separate School.

Referring to arrangements with Mattawa Town Council by which Ontario Hydro took over operation of Mattawa's electrical distribution system on January 1 this year, Mr. Saunders said the Commission is "looking ahead to a long and beneficial association with this new member of the 'Hydro family'."

Mattawa, with a present population of some 3,224, formerly purchased power from the Mattawa Electric Light and Power Company Limited which operates a plant on the Mattawa River, 2½ miles from the town. This plant has been in operation since 1899. In addition, the municipality has purchased power from Ontario Hydro since 1949 to meet increasing demands.

Under the new arrangement, the Commission will purchase the entire output of the Mattawa Company while handling distribution of power to Mattawa customers.

Lauding the fine service rendered by the Mattawa Electric Light and Power Company to the citizens of Mattawa, Mr. Saunders said the municipality could face the future with fresh confidence in its campaign to attract new industries.

Linked with Ontario Hydro's growing power network, Mattawa could move forward to new horizons of achievement. Mr. Saunders said, referring to the nearby 273,000-horsepower Otto Holden Generating Station, where work on the eighth and final unit was in progress. Following Mr. Saunders' addresses colored slides were presented showing various stages of construction at the impressive Otto Holden development which was officially opened on June 10, 1952.

Addressing a gathering which included members of Mattawa Town Council and businessmen, Mr. Saunders said:

"We are proud to declare Mattawa a member of the great Hydro family because the town has taken its place among the progressive municipalities of this province."

The Hydro Chairman also praised civic leaders and local clergymen for their efforts in bringing about this change in Mattawa's electrical status, adding that with such support the town's future was an assured fact.



**ALTHOUGH** it was Friday, February 13 when Mattawa officially became a member of the Hydro family, citizens were not a bit superstitious. To demonstrate their faith in the future, they accorded their first lady councillor, Mrs. Albertine Mosley, the honor of presenting a silver tea service to Chairman Robert H. Saunders on their behalf to mark the happy occasion.

**CHAIRMAN SAUNDERS** had a busy day addressing pupils of Mattawa High School and St. Anne's Separate School when he recounted the dramatic story of Hydro development throughout the province and described the significant part it had played.





# VENERABLE STATUS

## *Two Brantford Township Commissioners Complete 32 Years' Continuous Service*



—Brantford Expositor.

**EXCHANGING CONGRATULATIONS** on completion of 32 years' continuous association with Brantford Township's Hydro system, Roy Pierson, left, and George Unger, recall early days before system was administered by a commission, when they travelled many miles getting customers.

**P**ROOF that Hydro in Ontario is gradually attaining venerable status is manifested by the long-service records of many of its representatives throughout the province.

Two such men are George F. Unger and Roy Pierson, both of whom completed 32 years' association with Brantford Township's Hydro system at the end of 1952.

In 1920 when Brantford Township took over distribution of power within the municipality, it was known as Brantford Township Hydro-Electric System, and was administered by a committee of the local township council.

### **Charter Commissioners**

By 1930 the system had grown to such an extent that it was deemed advisable to place it in the hands of a separate commission. George Unger and Roy Pierson were elected to the infant Brantford Township Hydro - Electric Commission rolling up large majorities over other contestants.

It was fitting that both men should have been chosen to administer Hydro affairs in the township following inauguration of the new commission, as these faithful public servants had been responsible, to a great extent, for the growth of the Brantford Township system in the first decade of its existence. In 1920, it was serving only about 680 customers. To promote expansion of electrical service in that municipality, both men travelled literally hundreds of miles by horse and buggy, telling farmers and other potential customers about the benefits of Hydro power. Today, it is not necessary to sell Hydro to their community—Brantford Township has approximately 3,663 customers—but the two men are just as indefatigable in their determination to exemplify Hydro's pre-eminent objective of continuous and dependable service as





**THIRD GENERATION** member of the Pierson family engaged in Canada's postal service, Roy Pierson took over from his father at Cainsville as postmaster in 1930, the same year he was first elected to the newly formed Brantford Township Commission. His grandfather became postmaster at Milverton, Ont., in 1856. Serving a growing community, Cainsville Postoffice is handling an increasing volume of mail.

they were 30 years ago. When an emergency arises, both can be found lending a helping hand to local linemen.

#### Popular With Electors

Their devotion to this form of public service has not gone unrecognized, however. Mr. Unger, born in Langford, New York, but a resident of Brantford Township for the past 69 years, has been accorded an acclamation every year since 1930, with exception of 1949, when he contested and again won the seat on the local commission.

To Roy Pierson—born in Perth County, but, like Mr. Unger, a “local boy” in every other sense—dependable public service is a “natural.”

For almost a century the Piersons have been engaged in public service. Roy's grandfather began his career as postmaster at Milverton, Ontario, in 1856. Roy took

over from his father as postmaster at Cainsville in Brantford Township in 1930—the same year he was first elected to the local Hydro commission.

#### Personal Service

On frequent occasions people served by the Cainsville postoffice express surprise—and delight—at the exceptionally short time letters take to reach their destinations. If you ask Cainsville's postmaster for an explanation he smiles and professes amazement. But, the answer can usually be found in the fact that the obliging postmaster makes a quick trip to the station when the letter arrives too late to make connections in the normal manner.

To explain this type of personal service you have to take Roy Pierson's word that “it's in my blood.”

As a Hydro commissioner, he runs a close second to Mr. Unger in the number of acclamations he has received from the Brantford Township electors. Only twice—in 1932 and 1950—has he had opposition for a seat on the commission. Each time he emerged the victor. He is a Past Chairman of District No. 5 O.M.E.A., and during the past year has been a Vice-Chairman of this group, as well as a District Director of the provincial organization.

#### Praised by Chairman

Both men recently received letters of congratulation from Chairman Robert H. Saunders who praised their contribution to Ontario in these words: “I have always felt that the people of this province owe a great deal to men like yourselves who give so unselfishly of your time and abilities to the affairs of Hydro.”





ROSS L. DOBBIN

# HONORED BY E.I.C.

*Well-known municipal Hydro representatives, Ross L. Dobbin and Ralph B. Chandler, playing prominent roles in the Engineering Institute of Canada*

**I**N recognition of his distinguished contribution in the field of Canadian engineering, Ross L. Dobbin, \*retiring General Manager, Peterborough Utilities Commission, has been acclaimed as President of the Engineering Institute of Canada. The Institute is a 15,000-member organization with branches in all provinces.

A charter member of the Peterborough branch of the E.I.C., of which he is a Past Chairman and Secretary, in addition to Vice-President, Ontario Zone, E.I.C., Mr. Dobbin was nominated for the presidency in 1953 by the local branch and his name submitted to the Nominating Committee of the Institute last February. He was the only presidential nominee of the constituent branches of which there are approximately 45.

This further distinction recalls the fact that in 1951, Ontario Hydro honored Ross Dobbin by giving his name to its large and important Peterborough Transformer Station in keeping with its policy of recognizing outstanding Canadian engineers.

Born in Lindsay, Mr. Dobbin received his public and high school education in Peterborough, and later graduated from the University of Toronto with a BA.Sc. degree.

## Prominent Citizen

In 1914 he became Waterworks Superintendent in Peterborough and, in 1926, was appointed to his present position.

During his active career Mr. Dobbin has taken a prominent part in the activities of many technical and public organizations.

For many years, he was a member of the Council of the Association of Professional Engineers of Ontario. A member of American Water Works Association

## \*RETIRING IN MARCH

Retirement of Ross L. Dobbin as General Manager of Peterborough Utilities Commission on March 30 this year was announced on February 17. Succeeding him will be W. Howard Powell, who has been Chief Engineer and Assistant General Manager at Peterborough since 1949. A native of Toronto, Mr. Powell graduated from the University of Toronto in 1939. Following service in World War II, he was associated with Kingston PUC before going to Peterborough. Another change in the Peterborough staff will also take place at the end of March with the retirement of Howard Clegg, Business Manager, who has been a member of the staff since 1921. James Turnbull, who replaces him as Business Manager, joined the staff in 1928 when he succeeded Mr. Clegg as Works Accountant.

since 1914, he was elected President of that organization in 1931 and 1932. In addition, he is a charter member of the Canadian Section of the American Water Works Association and served as its Chairman in 1922.

## A.M.E.U. President

President of the A.M.E.U. in 1930, he also headed the Electrical Employers' Association of Ontario in 1935 and 1936. During the years 1927-1932 and 1948-1952 inclusive, he was a member of the Senate of the University of Toronto.

In addition to his active role in these larger spheres of activity, the new E.I.C. President has been prominently identified with several local organizations, having been President of the Peterborough Y.M.C.A., the Rotary Club, the Curling Club, the Peterborough Club, and the Peterborough Golf and Country Club. He was also a director of the Peterborough Chamber of Commerce for several years.

## Named Life Member

Equally interesting and gratifying is the recent announcement that Ralph B. Chandler, Manager of Port Arthur Public Utilities Commission, has been named a life member of the Institute.

Born at Stratford, this prominent figure in the Hydro fraternity was educated in that city and graduated from the University of Toronto in 1912 with an engineering degree.

Prior to his acceptance of the manager-



ship of the Port Arthur Commission, which administers the Lakehead city's electrical, telephone, water, and transportation services, Mr. Chandler was, for 20 years, consulting engineer with the firm of C. D. Howe and Company.

Having been a member of the Port Arthur Commission for several years, he had a wide knowledge of municipal affairs before assuming the managership. Like Mr. Dobbin, he has taken an active part in many local and outside organizations. In 1943 he was elected President of the A.M.E.U. He also was Chairman of the Port Arthur Parks Board and a member of the local chamber of commerce executive. For many years he was President of the Port Arthur Branch of the Canadian Red Cross Society, serving as Chairman of the Campaign Committee for over 15 years.



R. B. CHANDLER

Active in Lakehead Branch

Mr. Chandler's numerous and varied activities also have included the Chairmanship of the Lakehead branch of the Engineering Institute of Canada, as well as membership in the Canadian Section of the American Water Works Association and the American Institute of Electrical Engineers. He was named a Fellow of the latter organization in 1944.

While attending university he was a member of the Intercollegiate track team which held the championship for four years, and a member of the Intercollegiate relay team which also held the Intercollegiate Dominion championship for many years.

He was notified of his appointment as a life member by Dr. Austin L. Wright, General Secretary of the Institute, who was a fellow member of the four-man U. of T. relay team with Mr. Chandler.



MEMBERS of 1953 O.M.E.A. Executive, seated, l. to r., G. F. Hutcheson, Huntsville, Past Pres.; Loftus H. Reid, Toronto, Pres.; D. P. Cliff, Dundas, Sec.-Treas. Standing, l. to r., W. P. Dale, Brampton; T. J. Moffat, Listowel; H. G. Robertson, Barrie; Dr. Fred Barron, Paris; M. J. Elliott, Bowmanville; A. J. Girdwood, Guelph, and Thos. H. Barnes, Niagara Falls, who is serving during absence of Wm. Watterson, Welland.

ACCLAIMED O.M.E.A. PRESIDENT

LOFTUS H. REID, Chairman of the Toronto Electric Commissioners, Toronto Hydro-Electric System, was elected as 1953 President of the Ontario Municipal Electric Association by acclamation at this year's convention.

Prominent in civic and provincial affairs for several years, Mr. Reid was appointed President of the Association by the executive to complete the unexpired term of the 1952 President, the late Frank H. Plant, of Ottawa, who died last November.

With unanimous concurrence of convention delegates, Mr. Reid designated George F. Hutcheson, of Huntsville, a former President and Secretary-Treasurer of the Association, as Past President. D. P. Cliff, Dundas, is Secretary-Treasurer.

Vice-Presidents elected were: District 1—M. J. Elliott, Bowmanville; Dist. 2—H. R. Robertson, Barrie; Dist. 3—W. W. Fuller, Sioux Lookout; Dist. 4—W. P. Dale, Brampton; Dist. 5—Dr. Fred Barron, Paris; Dist. 6—A. J. Girdwood, Guelph; Dist. 7—H. R. Henderson, Woodstock; Dist. 8—D. P. Herring, Sarnia.

District Directors elected for the ensuing year were: Dist. 1—G. E. Findlay, Carleton Place, and James Harris, Kingston; Dist. 2—A. A. Kennedy, Owen Sound, and John Bull, Collingwood; Dist. 3—J. R. Pattison, Fort William, and J. D. Phillips, Schreiber; Dist. 4—Loftus H. Reid, Toronto, and E. W. Grant, New Toronto; Dist. 5—Roy Pierson, Brantford Twp., and Wm. Watterson, Welland; Dist. 6—H. O. Hawke, Galt, and T. J. Moffat, Listowel; Dist. 7—J. B. Hay, London, and P. R. Locke, St. Thomas; Dist. 8—O. R. Burr, Point Edward, and S. G. Thomson, Chatham.

Named Honorary Vice-Presidents were: Fred Biette, Chatham; K. A. Christie, Q.C., Toronto; C. J. Halliday, Chesley; H. O. Hawke, Galt; G. S. Matthews, Peterborough; and G. F. Hutcheson, Huntsville.



# CONVENTION CARICATURES

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**J. D. PHILIPS  
SCHREIBER**



**F. B. PENSE  
KINGSTON**



**GEORGE BUKATOR  
CHIPPAWA**



**M. J. ELLIOTT  
BOWMANVILLE**



**E. W. BROWN  
WOODBIDGE**



**M. A. O'SHEA  
HASTINGS**



BY "MAC" — TORONTO  
TELEGRAM CARICATURIST

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A. GRANDFIELD  
GALT



H. B. MATTSON  
PRESTON



R. J. SMITH  
PERTH



ROSS L. DOBBIN  
PETERBOROUGH



W. J. BISHOP  
GUELPH



RALPH MacDONALD  
WELLINGTON



H. L. PRINGLE  
WHITBY



# Welcome Challenge

## A. L. Furanna Chief Engineer, London P.U.C. Describes Frequency Standardization Operations in Western Ontario City

**F**REQUENCY standardization in Ontario has been, and is, a project which has presented a welcome and successful challenge to engineering skill. It is an operation which promises far-reaching potential benefits for the future.

That was the opinion expressed by A. L. Furanna, Chief Engineer, London Public Utilities Commission, during presentation of a paper at the recent annual O.M.E.A.-A.M.E.U. Convention, dealing specifically with frequency standardization operations in London.

The mechanical work of standardization at London, he said, began June 1, 1950, and, with the exception of one customer, was completed in April of 1951, a span of eleven months.

"However, before the actual field work began, a year and a half of concentrated engineering study on the part of our own staff and that of Ontario Hydro was required," the speaker pointed out.

London was the first city for which this study was made, and because of its size was to contain most of the problems to be encountered in large-scale, high-speed

changeover of domestic consumers in other 25-cycle areas. There were a large number of manufacturers with loads ranging from 3 to 3000 kilowatts, which provided a good cross-section of the problems to be found in industry.

### Basic Principles

The first stage in the standardization plan was a report by Ontario Hydro's System Planning Department started in the latter part of 1948, and completed in June of 1949. This was the first comprehensive study made in this project, and served many purposes besides developing a general plan for the system changeover. It developed the basic principles upon which standardization was to be carried out. From this plan the average size of cut was determined. Sample inventories were taken from which the average work load was determined. By this preliminary investigation much of the organizational requirements of the contractor were determined.

Early in 1950, the Frequency Standardization Division moved into London and set up an office and warehouse. Shortly

afterwards a resident engineer was assigned to London, who, with the local commission's staff, prepared the detailed procedures to be followed by the field force in each individual cut.

"It was through this co-operative effort that the smooth and efficient progress of the field work was possible," Mr. Furanna stated.

The engineering detail, covering each cut, was produced in London co-operatively by H.E.P.C. and London P.U.C. staffs, but was printed, published, and distributed in book form by Ontario Hydro.

Again this combination was in the interest of efficient operation, with the H.E.P.C. doing that part of the work which would be common to other municipalities. This information was published in nine volumes covering 160 domestic and commercial cuts, and 120 power cuts, totalling some 26,600 consumers.

Each volume was published at least one month in advance of the date of the first cut contained therein. It consisted of a schedule of cut dates, drawings showing the general system conditions for each different stage during that period, and following that was the individual cut information.

The door-to-door inventory of frequency sensitive equipment started two months in advance of the first cut date. Finally, that first cut-over day arrived. A swarm of red trucks and an army of men descended upon a small area in the east central part of the city. Children and housewives lined the street. The children

*(Continued on next page)*

## AMONG THE SPEAKERS



**HON. ORLO M. BREES**  
Albany, N.Y.



**A. W. MURDOCK**  
Ontario Hydro



**P. R. LOCKE**  
St. Thomas



## WELCOME CHALLENGE

were amazed by the excitement of the white-coated men hustling around them, their mothers waited in silence for whatever horror they expected would befall some of their most prized possessions. However, it was not long before the contractor's men calmed their fears by proving that they were capable of doing the work to their satisfaction.

"In most cases, these men were the only contact the consumer had with the H.E.P.C., and the whole scheme was judged by their behavior. They had a public relations job to do, and should be complimented on the way they conducted themselves," the speaker declared.

### Standardization Effects

The post-conversion effects on the system were many. One of the most serious and costly was the poor regulation obtained from 25-cycle transformers operating at 60 cycles. Except in the case of a few dual frequency units, the connections of large station transformers were not altered. As a result, former short-time overloads were no longer permissible, and the system lost approximately 15% of its station capacity. The same conditions applied to small distribution transformers. But, in this case, it was possible to reconnect many types for 60-cycle operation at approximately 1.9 times the original kva.

Further effects of regulation were felt on the distribution system. Because of increased voltage drop it was necessary to shorten the length of feeders for the same load carried at 60 cycles. In the case of the primary circuits this worked itself out because of the additional substations located between existing stations. This automatically reduced the length of feeders and thus improved an otherwise serious condition.

### Many Advantages

"So much for the disadvantages of the change from the 25- to 60-cycle frequency, because there are many advantages which we have already begun to realize, and others which will require more time to make themselves felt," Mr. Furanna continued.

The most apparent was the lower cost of the higher frequency equipment. In spite of the fact that transformer costs had increased 40 percent since the beginning of 1950, there was still an advantage of 41 percent in favor of purchasing 60-cycle units rather than 25-cycle. Motor prices favored the 60-cycle purchase by almost 50 percent.

## CO-OPERATION — THE GOLDEN KEY!

**C**O-OPERATION is the golden key that unlocks the door to successful frequency standardization operations in any municipality.

That was the view expressed by Arthur E. Fort, Manager and Secretary of the St. Marys Public Utilities Commission, during an address entitled "Reflections on Frequency Standardization as it applied to St. Marys," delivered at an afternoon session during this year's O.M.E.A.-A.M.E.U. convention.

Mr. Fort stressed the fact that municipalities like St. Marys had nothing to fear, and no great problems to solve, in connection with frequency standardization if they did not underestimate the job. They must ensure also that local staffs and commissioners had complete information and gave 100 percent co-operation to all Ontario Hydro and Canadian Comstock representatives.

"Try to persuade your commissioners to get to know these people personally, as far as possible; find out what the job is all about, and stick with it," Mr. Fort urged.

Being sympathetic with customers was "a big help," and aided public relations, he said. It followed naturally that if customers had certain troubles during changeover they were likely to be more considerate.

The St. Marys Manager said that before Ontario Hydro undertook standard-

ization of an area they held public meetings, presented films, and advertised in the press to acquaint customers with what standardization meant.

### Do Job Thoroughly

"Planning," said Mr. Fort, "is Ontario Hydro's job and they do it thoroughly. When they set a definite date for standardization, that is when it starts—the day and the hour."

Dealing with meter standardization, the speaker advised contact with L. V. Hunt, Ontario Hydro's Meter Engineer, and Roy Harmer, Consumer Service Engineer.

"They will give you their wholehearted co-operation," he said.

Mr. Fort concluded by summarizing: Local staffs should help Hydro and Comstock locate warehouses, office space, and accommodation for technicians.

Prepare well in advance for changeover of plant equipment.

To get through standardization easily, co-operate with Ontario Hydro and Canadian Comstock 100 percent, and keep customers advised regarding schedules and other pertinent matters.

Mr. Fort's address was well received by an interested audience, and at its conclusion he answered many questions concerning two- and three-wire meters, system loads, and other technical matters.  
—By Frank Wood.

There had been many unsolicited statements from manufacturers that they considered the standardized frequency of advantage to them. Specialized machinery, not made in Canada, could be obtained in the U.S. for operation at 60-cycle speeds, and equipped with 60-cycle motors. It was reported also, that manufacturers with parent companies in the U.S. were able to import the dies and tools for the manufacture of items designed for operation at 60 cycles. Thus, they were able to produce in Canada items for which domestic volume would not warrant tooling in Canada.

So far, appliance retailers reported little progress. The newest 60-cycle appliances, available in the U.S. only, were still barred from the Canadian markets because of C.S.A. approvals. These approvals could probably be obtained for most items, but again the volume did not warrant the expense. Domestic refrigerators, washers, dryers, etc., were still available at the

same price for either frequency. Some other items such as fluorescent lighting units and television sets had become more universally available in a larger variety of models since changeover.—By H. B. Wood.

### Hit New Record

SIXTY new meter connections were made by Sudbury Hydro-Electric Commission during the three-week period from January 21 to February 12.

Normally the winter months are the slowest period for Hydro installations, and this unusual volume of business was described by R. H. Martindale, Secretary-Manager, as "due to large numbers of new apartments and duplexes being opened for occupancy."

The 60 new meter connections include 54 domestic meters and six commercial meters. During the same period 20 flat-rate water heaters were connected, bringing the total to 1,254 in service.



# Convention Candidids



CAUGHT IN THE ACT of pinning on his A.M.E.U. convention badge was A. W. Bromley, Kitchener P.U.C.



IN MORE SERIOUS VEIN, G. F. Harrington, Secretary, Millbrook Hydro Commission, discusses adequate wiring with F. C. Adsett, East Central Region, while examining the Electric Service League of Ont. display.

ALL CONVENTIONS have their lighter moments and this shows one of the highlights of the 1953 joint banquet. With entertainment keyed to the "turn-of-the-century" mood, in keeping with the recent 50th anniversary Hydro celebrations at Kitchener, guests donned handlebar mustaches, as one of the entertainers brought two of the chief figures at the banquet, Hon. Orlo M. Brees, guest speaker, left, and Loftus H. Reid, O.M.E.A. Pres., into her act by equipping them with hats of an earlier vintage while she sang old songs like "When You and I Were Young Maggie."

PROGRAMS and schedules were receiving serious consideration of this busy convention quartette, left to right, W. R. Mathieson, Secretary-Treasurer, A.M.E.U., Loftus H. Reid and D. P. Cliff, President and Secretary-Treasurer, O.M.E.A. respectively, and A.M.E.U. President Rex H. Martindale.





WATFORD delegates, R. A. Parker and G. B. Fuller, with A. C. Clemens, of Milverton, centre, were noted examining map showing progress of Ontario Hydro's important frequency standardization program.



DISTRIBUTION problem was being "threshed out" by G. R. Buchanan, Secretary, and William Hitchins, Chairman, Havelock Hydro Commission in consultation with R. E. Jones, Distribution Engineer, H.E.P.C.

R. M. McKENZIE, Manager, West Central Region, Ontario Hydro, (right), helps A. B. Manson, veteran Manager of Stratford Public Utility Commission, to orient a point on the wall map of the St. Lawrence-Great Lakes area in relation to the large scale model of the proposed St. Lawrence Seaway and Power Project which is fully visible in the lower photo.



FOCAL POINT of interest in the display room arranged by the Commission's Public Relations Division, which won the unanimous approval of delegates, was the St. Lawrence scale model mentioned above. Here a large crowd listens to description of salient features.





# GOOD RESPONSE

**R**EPLIES to the questionnaire concerning rate applications were received from over 70 percent of the 122 larger Ontario municipalities to which it was directed.

Terming this response "excellent," and expressing appreciation for the many useful suggestions received, A. W. Murdock, Ontario Hydro's Rate Study Engineer presented a significant paper at the final session of the recent O.M.E.A.-A.M.E.U. joint convention.

Mr. Murdock's paper was, in actual fact, a summary of the replies received. Introducing his subject, the speaker pointed out that "the purpose of the Standard Interpretation of Rates is to provide uniformity and to ensure that customers with similar conditions of service receive the same treatment in all municipalities."

## Presented for Consideration

He stressed the fact that any suggestions or recommendations he might make were presented solely for consideration and discussion, and that, until the Standard Interpretation of Rates, in its final revised form, was accepted by the Rates Committee and approved by the Commission, the regulations contained in the present issue No. 470226, dated February 26, 1947, must be observed.

"In classifying a customer," Mr. Murdock told the assembly, "more emphasis should be placed on the use of the equipment than on the type of equipment. The customer's maximum demand, time of demand, and load factor, are the major items affecting the cost of service, and if proper adjustment is made for power factor, minimum billing, etc., and the customer's use corresponds to the general pattern for which the rate structure is designed, the service should be billed in that class. The revenue to be derived should not be the determining factor in a customer's classification."

The speaker felt that recognition of demand was a vital factor in power supply. With commercial billing, he held, it was still necessary to retain the present method of using installed capacity as an indication of the customer's demand. However, features which tended to provoke resentment on the part of the customer should be reduced to a minimum, and the rate structure should be so designed that, when applied to the readings

of appropriate demand and energy meters, it would automatically produce bills equitable to both the utility and the customer.

In suggesting a revision for "Clause 15," dealing with combined domestic and commercial services, Mr. Murdock pointed out that 72 percent of the municipalities concerned recommended changes. The revision proposed by the Rate Study Engineer had the advantage, he felt, of eliminating checking of the domestic portion of the service, and greatly reducing the commercial checking. Under this suggestion, only one bill would be rendered, and customers with more than 1,500 watts commercial would be obliged to split the service or pay commercial rates for the entire installation.

## Multiple Households

In Clause 16, covering multiple households, Mr. Murdock found a considerable difference of opinion regarding a suitable definition of the word "household." To obviate this difference, he suggested the following rewording: "Where service is supplied through one meter to a dwelling or other place of residence housing more than one family, and where the multiple occupancy is similar to the conditions of a duplex dwelling or an apartment house, one bill shall be rendered at domestic rates based on the number of household units served."

Clause 17, the speaker pointed out, provided that "summer customers shall pay in advance for nine months' minimum bills." Further study is required before applying the minimum for twelve months, as advocated by some municipalities. In addition, Mr. Murdock felt, a separate clause should be written for summer commercial customers, patterned in a fashion similar to short-term power, or to the clause covering bowling greens and golf clubs, rather than continue the present practice of tying in billing of a summer commercial customer with summer cottage billings through Clause 32.

## Public Boarding Houses

On the question of public boarding houses, where Clause 18 provided that these be billed at commercial rates, Mr. Murdock said most of the municipalities replying to the questionnaire used domestic rates.

"Several unsuccessful attempts were made to write an acceptable definition of a boarding house," said the speaker, "and it was decided to ask the municipalities. Many of the definitions were based on a varying number of boarders or roomers; whether meals were served; the degree of liveliness, etc. The most suitable definition seemed to be 'an established commercial enterprise registered as such with the municipality'."

The objective should be to prevent gross misuse of the service under the billing classification which was applied, and if this were kept in mind, perhaps the actual classification of domestic or commercial could be left to the discretion of the local manager.

Mr. Murdock felt the surcharge for X-ray equipment should be dropped, or at least its application made permissive rather than mandatory, except where special transformers had to be provided. This was because the installations, covered by Clause 26, had become somewhat general and were seldom detected if the customer was billed on demand.

Ninety-five percent of the municipalities replying to the questionnaire, Mr. Murdock indicated, stated they were using Clause 27, covering the half-rate for churches, and 74 percent were in favor of continuing this concession. To eliminate possible discrimination, where social and recreational facilities were contained in the basement of the church, as compared with other cases where these facilities were in an adjacent building, he suggested the rewording of the clause as follows: "Churches, including social and recreational facilities directly associated with the church, but excluding residential quarters, shall be billed at one-half the commercial rates, etc."

## Collection of Accounts

On the collection of accounts covered in Clause 50, and reading "when the consumer is fifteen days in arrears for two months' service, the service shall be discontinued, etc.," Mr. Murdock said a difference of opinion existed as to what was meant by "fifteen days in arrears," and further confusion resulted because some accounts were rendered monthly and others bi-monthly. It was suggested the clause be reworded as follows, in order to clarify the present uncertainty:

"Immediately following the discount date, steps shall be taken to collect the gross amount of the bill. If the bill is still unpaid fifteen days after the discount date, the service shall be discontinued

*(Continued on page 51)*



# AMONG THE *Speakers*

**BERT MERSON**  
Toronto Hydro-Electric  
System

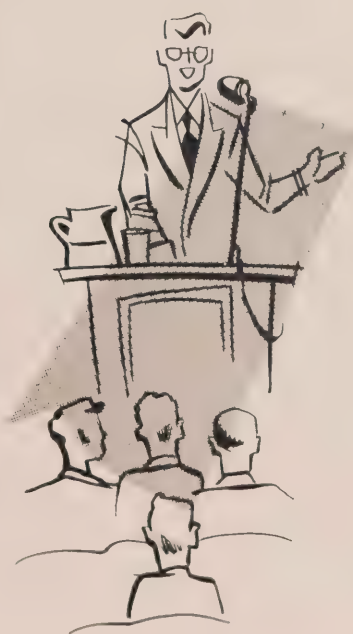


**J. A. LOWDEN**  
J. D. Woods and Gordon  
Toronto

**D. P. CLARKSON**  
J. D. Woods and Gordon  
Toronto



**R. S. REYNOLDS**  
Chatham Public Utilities  
Commission



**J. J. CARSON**  
Ontario Hydro

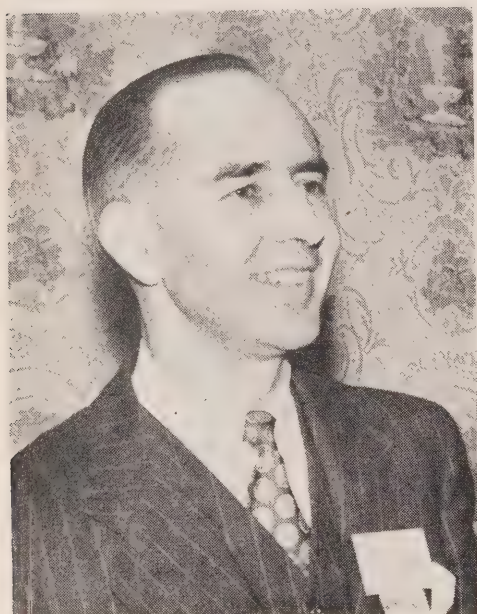




**ROSS R. LOGAN**  
Toronto Hydro-Electric  
System



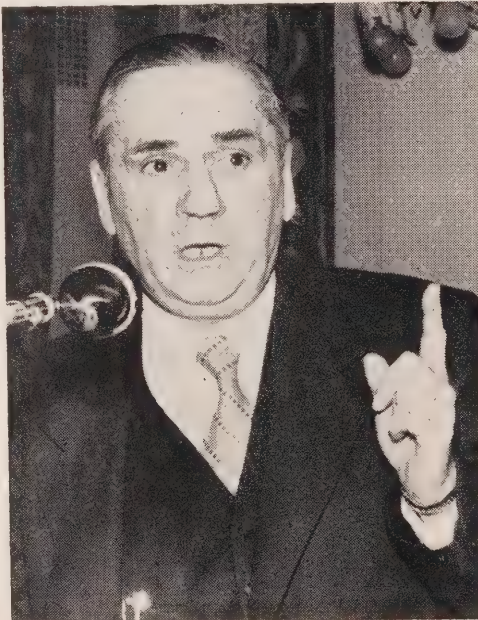
**J. F. COOK**  
Windsor Utilities  
Commission



**R. NORMAN BEATTIE**  
Ontario Hydro



**G. R. DAVIS**  
Ottawa Hydro-Electric  
Commission



**D. LEO DOLAN**  
Canadian Government  
Travel Bureau



# AMONG THE *Speakers*



# Increased Support Urged

## Sarnia Hydro-Electric Commission Praised For Electric Service League Co-operation

**C**ITING the Sarnia Hydro-Electric Commission as an outstanding example of co-operation, Bert Merson, Vice-Chairman, Toronto Hydro-Electric System, in presenting the annual report to O.M.E.A. representatives, sounded a clarion call for more effective support of the programs of the Electric Service League of Ontario by the municipal commissions.

Adequate wiring, he stressed, was a paramount necessity if the people of Ontario were going to be placed in a position to derive the full benefit from the use of electricity in their homes.

"As publicly-owned utilities," Mr. Merson pointed out to the delegates of the O.M.E.A. assembled at their annual meeting in Toronto, "it is our job to advise our customers with respect to the proper use of our product.

### Notable Decreases

Mr. Merson pointed out that there would be a notable decrease in complaints about the blowing of fuses and other interferences if Red Seal wiring were adopted by householders. This, in itself, justified the participation of local commissions in the adequate wiring campaign.

The report showed that 5,017 new "Red Seal" installations were completed in 1952, and that 2,569 were pending. Compared to the number of new homes built in Ontario during the past year, Mr. Merson claimed that this was not too impressive a showing. He was implicit in stating that this did not reflect on the work of the League but rather on those municipalities which had failed

to support adequate wiring in their localities.

"It is not pleasant," said Mr. Merson, "for your representatives on the League to be ever reminded that more could be done if only local Hydro Commissions pulled their weight. Neither is it pleasant for us—(James Harris, and A. O. Leslie are associated with Mr. Merson as O.M.E.A. representatives)—to have to report these shortcomings back to you."

### 90 Red Seal Homes

In Sarnia, the speaker stated, the local hydro commission had allotted a member of its own staff to work with the League on a part-time basis. As a result, 90 Red Seal homes had been certified in the Sarnia area since last September. He claimed that what had been done there could well be duplicated in many other centres.

The importance of adequate wiring, said Mr. Merson, had been recognized by the formation of a Canadian Bureau, and M. J. McHenry, Director, Consumer Service Division, Ontario Hydro, had recently been elected as its President. Naturally, the other provinces looked to the longer-established League in Ontario for leadership, and the League, in turn, looked for the support of local Hydro commissions and all those engaged in the electrical industry. The Electric Service League of Ontario had given its consent to the adoption of its own Red Seal emblem by the national organization and it would be a splendid accomplishment if adequate wiring could be standardized throughout Canada, he concluded—*by H. M. Blake.*

## GOOD RESPONSE

(Continued from page 48)

and shall not be restored until payment is received in full, including an adequate charge for the cost of reconnecting. Such discontinuance of service does not relieve the customer of the liability for arrears or for his service charge or minimum bills for the balance of the term of contract. The corporation may, if deemed advisable, make more rigid requirements regarding payment of bills."—*by H. J. Anderson.*

## ATTENDANCE RECORD

**W**ITH a registration of 1,100, attendance at this year's joint convention of the Ontario Municipal Electric Association, and the Association of Municipal Electrical Utilities broke all previous records. There were 1,083 registrations last year, 1,018 in 1951, and 995 in 1950, records indicate.

## Voltage Dips Discussed

**L**IMITING objectionable flicker or voltage dip in municipal systems, resulting from the high current surge in starting motors of the squirrel cage induction type, was discussed by M. H. Mackenzie, System Planning Engineer, Ontario Hydro, during the recent O.M.E.A.-A.M.E.U. Convention.

The speaker set forth a rapid and dependable method of calculating the size of motor allowable by basing it on permissible flicker.

"Having first set the flicker limits, or maximum allowable voltage dip, any particular application can be calculated, and a decision made as to whether across-the-line starting can be tolerated," explained Mr. Mackenzie.

Time could be saved, the speaker pointed out, by developing curves based on this principle, thus eliminating unnecessary calculations.

"Current surges or inrushes of 5.8 times full load current can be expected in the common types of induction motors."

Since a non-cyclic pattern of voltage dip was not objectionable unless frequent, larger variations were permissible with the amount of tolerance dependent upon the frequency of occurrence and the class of service.

Fundamental in deriving these rule curves was the need to establish as the maximum allowable voltage dip. In the examples used by the speaker, 8 volts or about 7 percent voltage regulation was allowed.

Methods of permitting larger motor installations without increasing the 7 percent flicker limit were suggested by Mr. Mackenzie. One method was the use of a compensator (auto transformer) to reduce the voltage 20 per cent. Since this would reduce the starting torque to 64 percent of full voltage, the type of load would determine whether this method was satisfactory.

Alternatively, a customer might purchase a NEMA type F squirrel cage induction motor which had an inrush of only 3.6 times normal full load current.

In some cases, series capacitors could be used to limit voltage dips due to motor starts.

The speaker concluded his remarks by inviting the delegates to send in any problems involving voltage dip control to the System Planning Department, Ontario Hydro.—*By H. B. Wood.*





FEATURING the Past President's luncheon during the recent convention were presentations of honorary memberships in the A.M.E.U. to three former presidents. With President Rex H. Martindale (left), officiating, R. H. Starr, Toronto Township (1926); V. S. McIntyre, Kitchener, retired, (1925), and J. G. Archibald, Woodstock, retired, (1928), received framed scrolls in recognition of their loyal service.

# Presentations

LEFT—In jocular vein, A.M.E.U. President Martindale presented President-elect Norman Grandfield, left, with a silver spoon to celebrate the recent birth of his second child, Clive, who, "Norm" is confident, intends to be a good engineer like his "pappy." CENTRE—Expressing the appreciation of the hospitality and courtesy extended to A.M.E.U. executive members last fall, Commissioner J. D. Phillips was presented with an electric clock by Pres. Martindale to be hung in Schreiber Town Hall as memento of the visit. RIGHT—In recognition of his untiring efforts on behalf of the A.M.E.U., the retiring President was presented with an engraved silver tray and illuminated address by Past President M. W. Rogers, Carleton Place. This traditional ceremony concluded the 44th convention.





## Best Preservative

**C**REOSOTE, a derivative of coal tar, has proven the most successful of all wood preservatives and is likely to remain the standard for many years to come.

This observation by John W. Suggitt, Ontario Hydro Research Division, was made during the course of his paper on "Wood Pole Treatment Methods," presented at an engineering session during the recent O.M.E.A.-A.M.E.U. convention held in Toronto.

"In general, successful preservative treatment of wood poles is dependent upon the proper selection of the preservative and the method of application," the speaker said. "In turn, this is governed by the conditions of service and facilities available."

Wood preservatives may be classified into three main groups:

- a) Preservative oils derived completely, or in part, from coal tar;
- b) Water soluble chemicals and proprietary mixtures of these;
- c) Chemicals toxic to fungi and insects which are soluble in organic solvents.

### Not Real Economy

Dealing with methods of pole treatments, Mr. Suggitt stated that low initial costs associated with simple treatments did not necessarily ensure real economy in wood use. The lowest cost per year of actual service was most likely to be attained by thoroughly impregnating the sapwood of all poles, even though the treating charges might be comparatively high.

"Impregnation with a recognized preservative by a pressure process before the poles are placed in service is by far the most effective treatment," said Mr. Suggitt.

Butt soaking, or hot and cold bath treatments for species having durable heartwood and thin sapwood, were excellent methods for prolonging pole life. Such methods were used extensively at present for the treatment of western cedar.

"Ground line treatments, where care is taken to secure a complete penetration of the sapwood at the ground-line, are the best approach to the preservation of cedar poles in service," stated Mr. Suggitt.

The speaker pointed out that surface treatments of poles by brushing, spraying or dipping was only of limited value, no matter what preservative might be used or how toxic it might prove.

## Promote Canadian Atmosphere

### D. Leo Dolan, Director of Canadian Government Travel Bureau, Guest Speaker at Joint Luncheon

**M**UNICIPALITIES should make it their responsibility to preserve local historical sites in a provincial and nation-wide effort to promote a distinctive Canadian flavor throughout this country.

This statement by D. Leo Dolan, Director of the Canadian Government Travel Bureau, to over 1,000 delegates during the joint A.M.E.U.-O.M.E.A. luncheon, was made with the prediction that 1953 would be a record tourist year for Canada.

"I have never seen such interest in Canada before," declared Mr. Dolan. "So far this year, our department has received 40 percent more inquiries than during the same period last year."

In anticipation of this large ingress of tourists, particularly from south of the border, the speaker offered some words of advice.

"Do not Americanize by imitating the architecture of American resorts. The tourist wants a change, not a repetition of scenes he left back home. Only by keeping this country different—by maintaining its Canadian traditions, will we continue to attract tourists."

Speaking of his impressions following 19 years of travelling throughout Canada in the interests of the Travel Bureau, Mr. Dolan expressed some criticism of Canadians.

"Their worst fault is a lack of knowledge of their fellow-Canadians."

Underlining the benefit of travelling in one's own country, Mr. Dolan said: "The advantages of meeting your fellow-Canadians, and of breaking bread with them, far outweighs any instruction or opinion you can derive from textbooks."

The fine relationship which now exists between the peoples of Canada and the United States was attributed by the speaker, in part, to their strong intermingling and mutual exchange of "hopes and fears."

Referring to the progress made on a national basis by the Travel Department, the speaker expressed a wish to see its impact on human relations if operated on an international scale.

The speaker was introduced by V. A. McKillop, General Manager, London PUC, following a civic greeting by Loftus H. Reid, Toronto Hydro-Electric System, on behalf of Mayor Allan Lamport.

Mayor Charlotte Whitton, of Ottawa, offered the appreciation of the delegates to the speaker and re-emphasized his thought when she said: "Don't sell your birthright for money. It is poor business and poor patriotism to imitate."—By H. B. Wood.

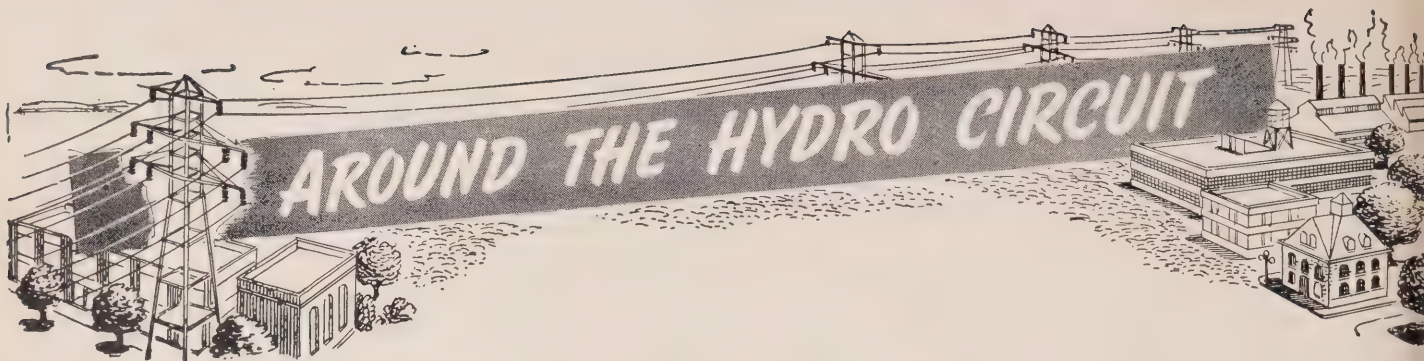
### BUILD SUBSTATION AT TRENTON FOR R.C.A.F.

**O**NTARIO HYDRO will construct one mile of 44,000-volt line and a new 44,000-volt substation, plus additional feeder lines at Trenton Airport to take care of expanding load at this hub of Canada's air defence program, Chairman Robert H. Saunders announced recently.

Plans call for these facilities to be placed in service by late Summer at a cost of \$141,500 of which \$121,500 will be borne by the Department of National Defence.

Trenton Airport is now supplied at 6,600 volts from Ontario Hydro's Sidney Transformer Station, some three miles distant from Trenton. The new distributing station, to be owned by the Department of National Defence, will eliminate low voltage conditions created by the heavy load increase of the past few months, and will take care of estimated future requirements.





## Port Arthur Commissioner Dies

**M**A RTIN J. McDONALD, 68, prominent Port Arthur business man and outstanding citizen, died suddenly on January 7.

Mr. McDonald was a member of the Port Arthur Public Utilities Commission for nine years during which time he served several terms as Chairman. A few weeks ago he was honored by the P.U.C. at a dinner in the Prince Arthur Hotel, when he was presented with a gold watch in recognition of more than 20 years civic service.



Martin J. McDonald

Owner of the Thunder Bay Lumber Company, Mr. McDonald was prominent in the business world. He was past president of many organizations including the Port Arthur Chamber of Commerce, Ontario Associated Chamber of Commerce, Lakehead Lumber Dealers' and the Lakehead Fuel Dealers' Associations.

Mr. McDonald as well devoted himself to several local philanthropic organizations including the Red Cross Society and the Children's Aid Society.

Born in Appleton, Wisconsin, Mr. McDonald came to Port Arthur 51 years ago and became associated with the Pigeon River Lumber Company and the Vigars-Shear Lumber Co. In 1910 he established the Thunder Bay Lumber Company.

Surviving besides his wife are two daughters, Mrs. Mary Baker and Mrs. Lorne B. Campbell and five grandchildren.

## Honor Memory Of Township Clerk

**T**RIBUTE was paid to the late Miss Mary Grant, one of London Township's "first ladies," who, for more than 30 years was clerk-treasurer of the municipality, at the recent inaugural meeting of the township council.

R. E. Hughes, Consumer Service Superintendent, Western Region, presented council with a picture of Miss Grant, whose memory he eulogized during a brief presentation address.

Prior to her death in 1934, Miss Grant

was reputed to be the first woman in Canada to hold the position of clerk-treasurer. Her father, well-known "Squire" Grant, was a friend of Sir Adam Beck. Both Mr. Grant and his daughter were enthusiastic boosters of Hydro when it was in its infancy.

In 1924 she was honored by being invited to open the Glendale substation. Council instructed Clerk J. R. Reynolds to hang the picture in a prominent spot in the offices of the township which Miss Grant served so long and well.



ONTARIO HYDRO was commended recently by Reeve F. W. Hall, York Township, for its service to senior tenants of the new municipally-owned Beech Hall apartments which was supplied with 60-cycle power in advance of regular standardization operations in the area. Many of the new tenants had 25-cycle clocks and fans, but age and other circumstances made it difficult for them to visit Hydro's nearest clock and fan depot to make exchanges for 60-cycle models. Since it was not deemed practical to send a mobile depot to the apartments, Ontario Hydro's Public Relations Department (Frequency Standardization) made arrangements to transport the new 60-cycle customers to the North York depot by car. Here Field Publicity Officer D. H. Cook arrives with Mrs. Mary Campbell, Mrs. W. H. Bater and Mrs. James Wilding.



## Bright Future

**A**REA between Oshawa and Niagara Falls is now the scene of 25 percent of the industrial activity of Canada, and is likely to have the greatest increases in population and industry in the next 50 years, said Dr. Donald F. Putnam, noted Canadian geographer, in an address to the Geography Club of McMaster University, Hamilton.

Dr. Putnam, who is Joint Chairman of the Department of Geography at the University of Toronto and author of a new geographical book on Canada, called *Canadian Regions*, predicted that the total population of the Dominion by the end of the century would be about 32,000,000, while that of Ontario would be about 11,000,000.

He forecast that the Niagara Peninsula and Welland Canal Zone would benefit greatly from construction of the St. Lawrence Seaway. He also thought some small ports would develop along Lake Ontario.

### IMPORTANT SESSION

**I**MPORTANT business, including a motion sanctioning a \$20,000 order for new transformers at the proposed \$50,000 substation, and approval of a \$20,000 plan for modification of meters, featured the inaugural meeting of Listowel Public Utilities Commission.

Thomas J. Moffatt was elected Chairman of the 1953 commission, and E. M. Creighton, a member of the commission for 25 years, was elected Chairman of the Light Committee.

Superintendent R. B. Hanna reported that the Light Department showed a net profit of \$1,642.07 in 1952. Mayor Lawson Cross welcomed the announcement that the commission would rebate a total of \$1,341 to the municipal corporation in connection with street lighting charges.

## Classified Ads

### FOR SALE

**O**NE Moloney 50 KVA 3 phase 25 cycle transformer, type HE-T Primary voltage 2300 V Delta or 4000 V Wye, Secondary voltage 230 v Delta. Serial number 100082. This transformer was originally purchased in 1944 and is in good condition. Sale price \$600.00. Kindly address inquiries to Mr. S. C. Webster, Superintendent, Tillsonburg Public Utilities Commission, Tillsonburg, Ontario.

## Don't Shock the Fish!

**A** RECENT discovery in Europe, that fish are attracted by underwater electric currents, has prompted the Ontario Department of Lands and Forests to alert its conservation officers to the possibilities of this latest method of illegal fishing being brought into Canada.

Details of the method naturally, are not being released. It is known however, that the current does not kill the fish, but simply attracts them making them easy victims of non-sportsmen, sometimes called fish hogs.

The discovery will be investigated by the Department as a possible means of research into the habits of Canadian game fish. Another suggested use for the discovery in Ontario, is destruction of coarse fish such as ling, suckers, and lampreys which eat the food and eggs of more valuable fish.

In Scotland, the method is under scientific study as a possible method of increasing deep sea catches. In Holland, it is under consideration as possible equipment for ships' lifeboats as a means of providing food and drink for shipwrecked passengers. Juice squeezed from salt-water fish has been found to quench thirst safely.

In England, the method is in use to some extent by English river guardians and game wardens. Because of its bulk and noticeable hum when in operation, illegal use of the equipment is difficult.

### WOULD REGULATE ANTENNAE ERECTION

**S**UDBURY Hydro-Electric Commission has recommended to city council that a by-law be prepared to regulate the erection of television aerials in the city.

The recommendation followed a report by R. H. Martindale, Secretary-Manager, on the problems confronting Southern Ontario municipalities where television antennae are already interfering with Hydro installations.

Mr. Martindale suggested it was the obligation of the respective city councils to see that the erection of television aerials was brought under the authority of the Building Inspector's Department. This was the opinion, he said, of delegates who discussed this same problem at a recent meeting of District 5 O.M.E.A.

A copy of Guelph's by-law dealing with television installation was presented to council as a guide in preparing the Sudbury act.

### LEWIS CHAIRMAN OTTAWA COMMISSION

**S**TANLEY LEWIS, former Mayor of Ottawa, and a veteran member (now beginning his 15th year) of the Ottawa Hydro Commission, was appointed Chairman of the commission as of March 1, 1953, at a lengthy first meeting of the 1953 commissioners.

Mr. Lewis will succeed Mayor Charlotte Whitton who has held the position since the death of the late Frank Plant.

### MAY DISCONTINUE GAS DISTRIBUTION

**W**ATERLOO Public Utilities Commission is discussing the possibility of discontinuing the distribution of gas at the earliest opportunity. The gas department showed an estimated deficit of about \$6,000 on last year's operations. Affecting this was the loss of almost 100 gas customers in 1952.

Only hope for the remaining 800-odd gas consumers in Waterloo is the possibility that the Kitchener Commission, which supplies gas to Waterloo, may take over the distribution.

### FORT WILLIAM REBATE

**F**ORT WILLIAM Hydro-Electric Commission has announced a rebate to city council of \$16,467.49, which represents an accumulated surplus for the supply of electrical energy to the municipal corporation. The surplus accrued from the following services: street lighting, \$9,214.82, transit system, \$6,486.34, and sewage disposal system \$766.33.

### NEW BUILDING

Brantford Public Utilities Commission is considering construction of a modern office building at a new site in that city. A local architect has been authorized to prepare preliminary plans and estimates.





**QUICK ACTION**—Round-the-clock operations by Hydro repair crews literally worked miracles at Chats Falls Generating Station on the Ottawa River after a serious fire on March 2 put the plant completely out of service. Within seven days after the blaze, six of the station's eight generating units were delivering power into the Southern Ontario System. It had been estimated that only four units would be ready for operation by that time, but intensive efforts of the repair staff resulted in restoring three quarters of the plant (165,000 horsepower) to normal service while work continued on the remaining two inactive units. No major interruptions of service were caused by the fire as the Commission's two steam generating stations at Toronto and Windsor were able to handle the extra load while the Chats Falls units were out of operation. Chairman Robert H. Saunders recently expressed appreciation of the major role played by firefighting crews from the Department of National Defence airport at Arnprior, the City of Ottawa, and the Town of Arnprior. One section of the powerhouse was badly damaged by the blaze before it was extinguished, with a portion of the roof collapsing and partially burying the frequency changer unit and one of the generators beneath the debris (inset).

**LINES ACROSS THE BORDER**—Greater flexibility and improved security of service will be effected through interconnections between Hydro's Southern Ontario System and the Detroit Edison Company (Michigan, U.S.A.) network at Windsor and Sarnia. That fact was emphasized by Chairman Robert H. Saunders in announcing that the Government of Canada had authorized the Commission to proceed with the tie-in between the two networks across the Detroit and St. Clair Rivers. The Detroit Edison Company is now awaiting U.S. Federal Government approval of the power line crossings. As Hydro's Southern Ontario System is already connected with Quebec Province and New York State, this latest tie-in will complete formation of an integrated, international network with combined resources of approximately 25,000,000 horsepower. The photo shows Detroit Edison's Marysville plant on the St. Clair River, near Port Huron, Mich., which will be linked with the Commission's Sarnia Transformer Station by 2.3 miles of 115,000-volt transmission line.







*... Right now, Gentlemen,*

## **We should see about Hydro Power**

In your plans for plant expansion or for new equipment requiring additional power, make certain that the power lines that feed your plant can supply an added load . . . or if new power lines are necessary, that ample time is given to dovetail your requirements into the overall Hydro distribution system.

While plans are in the blueprint stage, consult your Hydro office.



If you are improving or building a home, ask your Hydro for the booklet "Adequate Wiring Today for Electrical Living Tomorrow."





**ONE** of the highlights of the annual O.M.E.A.-A.M.E.U. Convention is the joint banquet. This year's guest speaker was Hon. Orlo M. Brees, former member of the New York State Legislature.







operations at Ontario Hydro's Sir Adam  
Niagara Generating Station No. 2.

ONTARIO HYDRO

*News*

APRIL, 1953

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VOLUME 40

—

NUMBER 4



# ONTARIO HYDRO *News*

APRIL, 1953

VOLUME 40, NUMBER 4

Published by

THE HYDRO-ELECTRIC POWER COMMISSION  
OF ONTARIO  
620 UNIVERSITY AVENUE, TORONTO



## COUNTLESS BENEFITS

IT has been estimated that there are approximately 200 possible applications of electricity on the average electrified farm today.

This, in effect, means that the farmer, through the use of Hydro power, can perform numerous chores that, otherwise, would be difficult, time-consuming, and, in many instances, arduous tasks.

Little wonder, then, that the gross value of Ontario's agricultural production increased from \$703,986,000 in 1945 to an estimated total of \$1,100,000,000 in 1952.

It seems reasonable to assume that this figure will be exceeded this year, and that the province's agricultural economy will continue to reach even higher levels in the next few years as Ontario Hydro expands its rural network.

Certainly, if the progress of the past seven years (more rural customers added than during the previous 24 years of rural Hydro service) is maintained there should be no slackening of farm output. In 1945, for example, Hydro was serving 156,600 rural customers over 21,569 miles of rural primary line. Today the number of rural customers being served by Hydro stands at approximately 348,000.

An examination of the Commission's plans for the current year is particularly encouraging. Hydro Chairman Robert H. Saunders announced recently that the rural program for 1953 is designed to add some 29,456 new customers.

Although top priority will be given to extensions carried over from 1952, this year's plans include the construction of 1,680 miles of new rural line to add 7,736 customers; major betterments, including part of the betterments approved but not completed in 1952; connection of 21,720 new customers to existing lines, in addition to minor betterments and capital expenditures to improve service to an estimated 4,025 customers.

There is little doubt that these extensions and improvements will have an important effect in further augmenting Ontario's agricultural production. But, it is well to remember that a great part of their significance lies in the comforts and happiness they will bring to hundreds of citizens in the rural areas of this great and prosperous province.



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### CONTENTS

	Page
Report to the People .....	2
Viceregal Visit .....	6
Hydro School .....	8
Awaiting "Green Light" .....	10
Foto-News .....	12
Hydro "Airlift" .....	16
High Head Station .....	18
Extend Program .....	20
Happy Reflections .....	22
Busy Session .....	25
Fostering the Kitchen .....	26
Around the Hydro Circuit .....	28
Will Increase Niagara Capacity .....	29
Expand 60-cycle Facilities .....	32

### COVER PHOTOS

We are indebted to the Carborundum Company, Niagara Falls, N.Y. for the loan of the very fine photo on this month's front cover, which shows night operations in the powerhouse area at Hydro's Sir Adam Beck No. 2 project on the Niagara River. On a recent trip to this development, a member of the Commission's photographic staff obtained the photo for the back cover.

Material published in Ontario Hydro News may be reprinted without permission. Most photographs are obtainable on request. If required, steros will be provided.





DOWAGER QUEEN MARY

1867-1953

*"Forever honored, forever mourned."*

HOMER'S "ILIAD."





# REPORT TO THE PEOPLE

*Over a province-wide network of radio stations, Hydro Chairman Robert H. Saunders presented a significant report to the citizens of Ontario on April 14, 1953. In his address, Mr. Saunders gave his radio audience an interesting review of subjects referred to in his reports to the Legislative Committee on Government Commissions during the recent session of the Ontario Legislature. In view of the significance of the subjects covered, the address is reprinted herewith.*

**G**OOD EVENING ladies and gentlemen, girls and boys of Ontario. This is your Hydro Chairman Robert H. Saunders again reporting to you the people I have the honour and privilege to serve.

Since my last radio report, we have had many interesting experiences—the most important being my appearance before the Legislative Committee on Government Commissions. May I publicly express my appreciation to the members of that committee and to its chairman, Mr. Alf. Cowling, Progressive Conservative member for Toronto High Park, for having granted my request that I appear before the committee and give the Hydro story.

May I also express my thanks at this time for the motion of appreciation to Hydro passed unanimously by the committee and for the very kind comments made in connection with my report. My sincere thanks go out to Mr. Whitney, Progressive Conservative member for Prince Edward-Lennox, Mr. Elliott, Progressive Conservative member for Hamilton East, the mover and seconder, also to Mr. Harry Nixon, Liberal member for Brant and Mr. W. J. Grummett, C.C.F. member for Cochrane South, who associated themselves with the motion of thanks and spoke so kindly.

Folks, it has always been, and will always be my policy to keep the people of Ontario informed on Hydro matters either directly or through their representatives in the Legislative Assembly or on municipal commissions. I know of no better method of building up and retaining that which is so essential to Hydro—public confidence. We shall give the news, be it good or bad. In following this course I am, I know, carrying out the expressed wishes of Mr. Drew, at the time of my appointment, Mr. Thomas Kennedy, when Prime Minister, and also our present hard-working and efficient Prime Minister—The Hon. Leslie M. Frost, Q.C., LL.D.

I assure you that I endeavoured to answer every question fully and frankly. I do hope that all committee members

were satisfied with the answers.

In this report I shall endeavour to inform you on some of the subjects referred to at the two meetings of the committee.

First, our *Information Branch* which includes the *Public Relations Department*.

What are the functions of this department whose policy comes directly under the jurisdiction of the Hydro Chairman?

An organization as large as the Ontario Hydro and charged with the duty of supplying over 87.4 percent of the electrical energy consumed in this Province to more than a million and a quarter customers must be in a position at all times to explain its activities, to outline the reasons for its extensive program and to keep the public informed on all phases of its operations.

Not only must we keep our own people informed—we must go farther. Your Hydro Commission has a definite responsibility in relation to the future progress of this Province and of Canada. We must see to it that industries, thinking of locating in Ontario know that if they come to any part of this Province, an abundant supply of low-cost power is available to them. I would say that something like 50 percent of this department's activities is directed to the selling of this Province and this country. We are definitely the active partner of municipalities, chambers of commerce, boards of trade and industrial commissions throughout Ontario. More than that—Hydro is the active partner of the Provincial Department of Planning and Development and the Federal Department of Trade and Commerce.

In carrying out these activities Hydro uses all the recognized publicity outlets and maintains close contact with the daily and weekly newspapers, the trade press and radio stations and emphasizes personal contact and the examination of our projects by our own people and outsiders representing every walk of life. To mention a few of these activities:

During 1952—216 news releases, special features and



articles covering a wide variety of Hydro subjects were issued from my office.

Since March 1st, 1948, I have reported to the people 331 times in 95 different cities and towns throughout Ontario and, on several occasions, I have addressed audiences in the United States.

Since 1947 our records show that close to 235,600 people have visited our projects. In 1952 some 441 tours were organized enabling 53,500 persons to visit Hydro projects.

Since 1947 members of the Commission staff have delivered 918 addresses or lectures and made 5,230 showings of Hydro films to an audience of more than 610,250 people.

During 1951 and 1952 a total of 52,000 were able to form on-the-spot impressions of the magnitude of the job that is going on at Niagara.

The work of this department which is really the Information and Public Service Branch is tremendous indeed. What is the cost of this branch, including public relations?

I can assure you that our overall costs of this Branch compare favourably with other organizations. It is, of course, recognized that private corporations selling a product would be in a different position than Hydro. Realizing this, it can be pointed out that two large electrical appliance manufacturers in Canada are spending an average of 1.3 percent of their revenues on public relations or, as they call it, sales promotion, compared with Hydro at 7/10 of 1 percent, for its entire Information Branch. It is also interesting to note that, according to a report of the Federal Power Commission in Washington, and dealing with some 266 publicly-owned electric utilities, their public relations or sales promotion expenses totalled in percentage of operating revenues—in 1950, one percent; 1951, one percent. Ontario Hydro 7/10 of 1 percent for its entire information branch.

Let us move on to the subject of:

HYDRO CONTRACTS AND PURCHASING

May I emphasize the fact that your Ontario Hydro has very definite principles and procedures which govern the purchasing of materials and supplies and the awarding of contracts. These principles and procedures are adhered to very strictly. The importance of this can be realized when I tell you that since 1947 the value of purchase orders placed for materials, equipment and services is in excess of \$650,000,000.

The primary purpose of all Commission purchasing is to secure the equipment at the time it is needed and at best value.

You will readily agree, I know, that it would be ridiculous for the Commission to consistently award contracts to the lowest bidder without full consideration of the capabilities and responsibility of the companies concerned. In brief, we must be sure that a company can do the work efficiently, to our specifications and assure delivery on schedule. Once we have satisfied ourselves on these points, then we can award the contract for the work or the materials on the basis of the lowest price.

To prepare for the Legislative Committee, I reviewed the contracts let in connection with our 14 major projects since August 1945. I reviewed four of them—DeCew, Stewartville, Des Joachims, and Niagara—before the Committee. Let us take another—for example, Aguasabon. Let me go down the list as I have it before me—giving the equipment and reason for allocation of business:

Turbines	- - - - -	lowest of 4 tenderers
Generators	- - - - -	" " 3 "
Transformers	- - - - -	" " 3 "
Circuit Breakers	- - - - -	" " 3 "

Penstocks	- - - - -	lower of 2 who bid
Structural Erection Steel	- - - - -	lowest of 6 tenderers
Reinforcing Steel	- - - - -	Standard mill prices
Headgates and Hoist	- - - - -	Second lowest of 2 who tendered because of engineering preference and delivery.

Yes, folks, once we are satisfied that the tenderer can do the work efficiently, to our specifications and assure delivery on schedule, then the contract is let on the basis of the lowest price.

Before leaving this question, let me mention a fact that is not well enough known among Canadians. *The bulk of our engineering equipment is made right here in Canada.* A very prominent business man to whom I was talking recently was amazed when I gave him the figures. I told him that of \$117,012,865 worth of purchase orders placed by the Commission last year alone, \$110,241,778 or 94.22 percent were filled by firms in Canada.

Let us come to our third subject:

INCREASE IN RATES—WITH PARTICULAR REFERENCE TO MINING COMPANIES AND MINING CONTRACTS

This subject is of particular importance to those who live in Northern Ontario—roughly including and north and west of North Bay to the Manitoba border excluding the Thunder Bay municipalities.

There have been objections to certain clauses in Hydro mining contracts and misunderstandings as to the finances of Northern Ontario Properties.

In considering this whole question let me make this very clear.

*Northern Ontario Properties is a separate financial project and revenues must be adequate to meet costs. It, therefore, follows that any concession given to one class of customer must be borne by the other classes of customer.*

It should also be kept in mind that the scope and basis of the Commission's activities and responsibilities are fully covered by legislation, and the Commission must abide by this legislation. All the Commission's accounts are subject to audit by auditors appointed by the Province, and points of public interest and its financial reports are annually presented to the legislature of the Province and published in an annual report with wide distribution.

The Southern Ontario System is operated on a cost basis on behalf of a partnership of municipalities. The duties and responsibilities of our Commission in its capacity of Trustee and those of the local Commissions are set out in The Power Commission Act and The Public Utilities Act.

The Northern Ontario Properties, on the other hand, has not been operated as a system of co-operating municipalities similar to Southern Ontario, but has been operated by the Commission on behalf of the Province of Ontario. *The capital accounts of the Northern Ontario Properties, its operation and all reserves have been separately maintained.* UNDER NO CIRCUMSTANCES HAVE ANY RESERVES OR PROPERTY OF NORTHERN ONTARIO PROPERTIES BEEN TRANSFERRED AND USED FOR THE SOUTHERN ONTARIO SYSTEM.

It should also be borne in mind that any power purchased from the Southern Ontario System is charged to the Northern Ontario Properties at an energy rate equal to the pooled cost of generating power in Southern Ontario, *omitting any assess-*

(Continued on page 4)



ments for frequency standardization — may I repeat, omitting any assessments for frequency standardization. This arrangement constitutes an outside purchase of power in the same manner as if Northern Ontario purchased from Northern Quebec or any other supplier and gives Northern Ontario Properties the great advantage of postponing the date that additional generating facilities will be required. In 1951 and 1952, this tie line enabled the Northern Ontario Properties to realize a revenue, from the Southern Ontario System, of approximately \$700,000. The water producing this power during the spring freshets and other periods of high flows would have been spilled and lost in the absence of these tie facilities.

Let me refer to several requirements to which objection has been taken in connection with mining contracts and the supply of power to mines.

For example, Hydro requires a customer to initially pay the cost of additional transmission lines required to serve a property. We believe that this stipulation is fair and just. We do not believe that any other utility will or can be expected to spend large sums of money to serve a customer unless it has adequate guarantee that it will be reimbursed for its expenditure. It must also be remembered that no payment is normally required on expenditures for generation, high voltage transformer stations, metering equipment and such like; and further that the Commission agrees to refund money paid initially by the mines for the transmission lines in annual payments equal to 25 percent of the power accounts. Generally this works out at 10 percent per year. An important feature of this procedure is that any payment by the company for capital expenditure is completely and quickly refunded under the terms of the contract if the mine is successful. It is not the duty or responsibility of your Hydro Commission to speculate as to the success or otherwise of a mine.

The Rate Review clause in mining agreements has been the subject of enquiry. This clause gives the Commission the option of changing the power rate once in each year by sixty or ninety days' notice in writing prior to the end of each contract year.

The rates for power supplied to industrial customers in the municipalities and rural areas throughout the Province have always been subject to annual adjustment to conform with changes in the cost of supplying power. Prior to World War II, the annual costs of generating and distributing power were not subject to severe changes and long-term power contracts with large industry supplied directly by the Commission were feasible. However, following World War II, due to the inflationary trend of all wages and prices, it was necessary to introduce some means of reviewing rates annually.

The Rate Review clause was introduced in 1950 into new industrial power contracts in Southern Ontario. At the present time, approximately 98 percent of all power sold to direct customers and cost municipalities in Southern Ontario is subject to an annual rate review, and this figure will reach almost 100 percent in a short period.

The Rate Review clause was introduced into mining agreements in Northern Ontario Properties in 1951 and, at the present time, approximately 60 percent of the total Northern Ontario Properties industrial load is subject to an annual rate review. Approximately 100 percent will be subject to review in 1958, and at this time it will be possible to again apply a uniform rate to all mining loads. At the present time, any differences in rates to mines is due to the existence of unexpired contracts without annual rate review provisions. The

Rate Review clause will shortly re-establish the principle of uniform rates to all mines and will ensure that this uniformity is maintained.

I think all will realize that the costs of delivering electric power are, of course, subject to change and increase as a result of the same factors that affect all costs both to manufacturing and mining. It should be borne in mind also that the only alternative to annual rate review is to set a sufficiently high rate to meet estimated costs over a period of years. Under present conditions, such a policy would, undoubtedly, result in the customer paying a higher rate than would prevail under the rate review provisions.

We believe that the annual rate review clause is sound.

Objection has been taken to Force Majeure or strike clause — under this clause, a customer must pay a minimum charge during a strike according to the terms of the agreement. We believe the Commission is right in retaining this clause. In fact, folks, almost everyone who is listening to me is subject to the same type of clause. All domestic, commercial and power customers throughout the Province are subject to a minimum payment whether or not the power is used. So that there is nothing new in requiring a minimum payment. In connection with this clause, we must remember, at all times, that your Ontario Hydro operates at cost. It must be realized that approximately 58 percent of the cost of power of our Northern Ontario System, consistent with capital charges, continue irrespective of whether or not the power is used because we operate at cost and because these costs continue, we provide for minimum payment. Let us realize that the only alternative to the present clause is to transfer the liability for payment of power from the individual mine either to industry in general or to other users of power in Northern Ontario.

What the effect would be, without this clause providing for a minimum payment, can be realized when we take, as an example, the condition that might arise where the loss of revenue of one company's load alone in the Northeastern Region during a three-month strike would amount to as much as nine percent of the total revenue from all loads from that Region during a 12-month period. In other words, an increase in all rates of nine percent would be necessary for one year to recover this loss in revenue.

A strike in several plants in one industry might have similar results.

We have seriously considered this whole matter and have reached the conclusion that it is right that the responsibility should rest on the individual customer and that this clause should definitely be retained.

Let us come to *Frequency Standardization*.

It was, as you know, decided in 1948 to go ahead with this tremendous and complex project. Once the decision had been made, the procedure had to be adopted and carried out.

Should we ask for bids? Could those bids be on the basis of fixed price or on the basis of cost plus a percentage?

In deciding these questions in 1948 your Hydro had to keep in mind the essentiality of time. The projects were being built; the power from these projects was to come in at 60 cycles, the provision of frequency changer units would have been expensive and would create a loss of about ten percent of power being changed. It was absolutely necessary that a sufficient amount of changeover take place to use the new power as it came into the system at 60 cycles. Yes—*Time was very definitely of the essence*.

What was needed and needed immediately was a contract



with a company well experienced in this kind of work and established on a large enough scale with trained staff and technical experience, and who had the necessary know-how available to it to proceed with the program immediately at the accelerated rate required.

The Canadian Comstock Company had the trained staff and the know-how available to do the job. It was, therefore, decided that we should approach this company, as we did.

The next question was—

Could the contract with Comstock, or in fact with any other contractor, be on a fixed price basis? A study of the elements involved will show the impossibility of a fixed price contract.

First, the fixed price contract would have to be on the basis of an actual survey of every piece of equipment to be changed over, or on the basis of so much for appliance motors or otherwise.

An actual and complete survey of the whole program would take time and much time at tremendous expense and, in the end, not give a firm basis for a contract. Imagine the difficulties involved here.

In 1947—784,300 customers to be changed over.

In 1953—904,700 customers to be changed from 25 to 60 cycles.

Between the years 1946 and 1952 (inclusive)—530,985 washing machines were sold in Ontario.

Between 1946 and 1952 (inclusive)—590,264 new refrigerators were shipped into Ontario.

In 1945 there were 21,995 oil burners in use in Ontario; by the end of 1951 there were 217,212 domestic oil burners in use in this Province.

What about the firm price per refrigerator or washing machine or any other appliance? We have encountered 1,503 models of washing machines and 2,794 models of refrigerators. A fixed price per unit would, of course, be impossible.

These are just a few of the difficulties that make a firm contract impossible.

It is interesting to note that one of the eight recommendations of the Electrical Contractors Association of Ontario dated April 2, 1951, reads: *"That basis of payment to the contractor be cost-plus within specified limits."* In their brief the Association further point out under the heading "Basis of Payment to Contractors" the following: *"It is felt by our Association that if individual contractors are not permitted to make adjustments to cover unforeseen costs, it would be impossible to carry out the program in a satisfactory manner."*

It also should be clear that on a fee contract the Commission has the fullest opportunity to control costs and pays only for such contingencies as are encountered. On a fixed price contract, *if such could be obtained*, the contractor would be forced to include a very substantial provision for a wide variety of contingencies and the Commission would have no opportunity to realize any savings if these did not materialize, or otherwise direct the performance of the work beyond the conditions specified at the time of tender.

Let us come to the *Payment of the Contractor*.

The contractor's fee is based solely on the value of the work and services performed by him. This work and these services are carefully stipulated in the contract.

For example:

The contractor's fee is not influenced by whether he procures equipment, material or facilities or whether the Commission does so.

To the end of 1952 the Commission had purchased materials entering into the work aggregating \$37,126,319 as against \$10,736,566 purchased by the Canadian Comstock Company—a ratio of 3.5 to one.

All purchases made by the contractor are scrutinized by a purchasing officer of the Commission located in his offices. All wage and salary scales paid by the contractor and charged to the Commission, are subject to prior approval by the Commission. Buildings, furnishings or rentals are also subject to prior approval. All items therefore for which the contractor incurs expenditures on behalf of the Commission are controlled and regulated by the Commission with a view to carrying out the work at the lowest possible cost.

The contractor's methods and procedures are subject to constant review by the Commission and are modified from time to time to obtain better efficiency in the operation.

Having arranged on a definite basis under the contract for the basic changeover of large blocks of load by complete areas, thus assuring that the required schedule of load standardization could be met, the Commission was then in a position to supplement the work in other ways. Duplicate 60-cycle facilities were established as rapidly as possible in all principal industrial areas so that industrial expansion could take place at 60 cycle and existing load in these areas could be converted in advance of the main program. When these advance 60-cycle supply facilities were available, it became possible to negotiate agreements with individual industrial customers who obtained their own contractors to do the work.

Many such agreements have been negotiated and this is continuing on an expanding scale. Also, in some areas, small contractors have grouped together to form work units of sufficient size and diversity to undertake domestic and commercial conversion on a basis approved by the Commission. I have with me a list of some 280 contractors involved in these two types of work entirely outside the Canadian Comstock Company contract.

It is interesting to note that the percentage of work done by the Canadian Comstock Company is rapidly diminishing. For example: from June, 1948, until December 31, 1950, frequency standardization work carried out by the Canadian Comstock Company represented 74.87 percent of total expenses; during 1951, 72.68 percent of the total; during 1952, 52.77 percent of the total and in 1953 it is estimated it will be approximately 50 percent of the total.

In stating these percentages may I point this out. We are satisfied with the work being done by the Canadian Comstock Company, for it is truly a highly efficient organization. But we believe that it is right that we should distribute this work if such can be done, having regard to proper efficiency and sound economy.

You might well ask, "How much has the Canadian Comstock Company received and what is the percentage?"

Well, folks up to and including December 31, 1952, Canadian Comstock Company received a fee of \$3,678,133 based upon work done by that company totalling \$64,889,632.

On a percentage basis, Canadian Comstock has received on work done up to the end of December of last year, 5.67 percent. But for work carried out only in the year 1952, the percentage was 4.95. The reduction was achieved by the change in the contract as of January 1, 1952, which netted the Commission a saving in 1952 of \$110,970. This change, we estimate, will bring a saving this year of \$116,414 or a total saving in 1952 and 1953 of \$227,384.



# VICEREGAL VISIT

**Hydro's Sir Adam Beck  
No. 2 Project at  
Niagara Falls Described  
as "Fascinating"  
by Canada's  
Governor-General**



WHILE INSPECTING one of the twin tunnels at the Sir Adam Beck No 2 development Governor-General Massey, with his host, Chairman Saunders, stopped to greet James Gallant, Nova Scotia, one of the drivers of a fleet of diesel trucks engaged in construction operations.

**C**ONSTRUCTION crews at Ontario Hydro's sprawling Sir Adam Beck-Niagara Generating Station No. 2 project welcomed a distinguished Canadian visitor a short time ago.

It was Canada's first native-born Governor-General, Rt. Hon. Vincent H. Massey, who came to view progress at this massive, 1,200,000-horsepower development—one of the most unique engineering undertakings on the continent.

The Governor-General's inspection of the project was a highlight of his visit to Niagara Falls during a recent tour of Southern Ontario. Greeted on arrival by Mayor E. M. Hawkins, of Niagara Falls, who extended the official civic welcome, His Excellency eulogized the role played by the Niagara area in Ontario's and Canada's development.

"Few places in North America have played such an important part, been so coveted and exerted so great an influence, both in peace and war, in the growth, settlement, and the civilization of the country."

## Wonders of Niagara

He said that "the wonders of the Niagara area have been written about since the early 18th century, and with the discovery of hydro-electric power, Niagara has assumed predominant importance, supporting a vast industrial expansion."

During the tour of the Commission's newest and largest hydro-electric development, the official party, which also included leading civic, provincial and federal representatives, was guided by Hydro Chairman Robert H. Saunders, Dr. Richard L. Hearn, Chief Engineer and General Manager, and Dr. Otto Holden, Assistant General Manager—Engineering.

First stop on the Viceregal itinerary was at the site of the giant powerhouse at the foot of the Niagara gorge where it was noted that excavation was nearing completion and installation of the sub-structure was well-advanced.

"All of those associated with this project can be justly proud of the fine record of progress to date," Hydro Chairman

Saunders told Mr. Massey. "This plan will be in initial operation next year less than four years after we first broke ground."

Continuing his tour of the surface features of the project, the Governor General saw sections of the 2¼-mile open-cut canal which will convey water emerging from the twin, 5½-mile tunnels to the forebay of the new generating station. Here, he was informed that approximately 14,000,000 tons of rock and earth must be removed. On completion next year, the canal will have a maximum width of 200 feet and an average depth of 70 feet. Concluding the phase of the visit, along an eight-mile construction front, His Excellency also witnessed work in progress at the site of the intake works near Chippawa.

## Visits Hydro Tunnels

Highlight of the tour of inspection was, however, a trip down No. 1 Shaft leading to the first of the twin tunnels now being carved out of solid rock beneath the City of Niagara Falls to



maximum depth of 330 feet. Wearing the customary "hard" hat, rubber overcoat and boots, the distinguished visitor saw the awe-inspiring job in progress as 15-ton diesel trucks roared past him and crews of workmen pressed forward with the work of completing the two subterranean passages which will have a lined diameter of 45 feet. The two tunnels, he was informed, will convey a total of some 15,000,000 gallons of water per minute from the intake works to the open canal.

Excavation of the first tunnel, His Excellency was advised, was about 55 percent completed, while excavation of the second tunnel was about 3 percent complete. Approximately 5,000,000 tons of rock must be excavated for each tunnel.

Hydro was also privileged to play host to Mr. Massey and members of the official party at luncheon in the cafeteria of the Chippawa camp of the Niagara development. Expressing his gratitude for the privilege of seeing this great Canadian project being rushed to completion, the Governor-General said:

"I had no idea of the magnitude of this marvelous development and shall carry away a most pleasant recollection of a very happy and fascinating visit."

#### Technical Skill

Complimenting the Commission on its enterprise in carrying through the 14th power project since 1945, the Viceregal guest said Hydro had two chief characteristics: technical skill and persistent modesty.

Turning to Chairman Saunders, he said: "You are hiding your light under a bushel. You should tell us more often about this great project."

Replying, Mr. Saunders created much good-natured laughter when he said that "I have not been accused of modesty in the last 10 years."

In more serious vein, the Hydro Chairman pointed out that the engineers on the project were very modest about their achievements at Niagara. The development, he said, was planned and designed by Canadian engineers, with the University of Toronto, of which the Governor-General is Chancellor, playing an active role in a consulting capacity.

With luncheon concluded, the party drove to Niagara Falls Memorial Arena where Mr. Massey was greeted by some 3,000 school children from the Niagara area, receiving their enthusiastic plaudits when he declared March 16 a holiday for all schools represented at the gathering.

(Continued on page 29)



WITH the towering Niagara cliffs as an impressive background, the official party, including Chairman Saunders, Mrs. E. M. Hawkins, Niagara Falls, Mrs. Lionel Massey, Dr. Otto Holden, Assistant General Manager—Engineering, and the Governor-General saw construction work in progress at the site of the huge new generating station six miles below Niagara Falls.

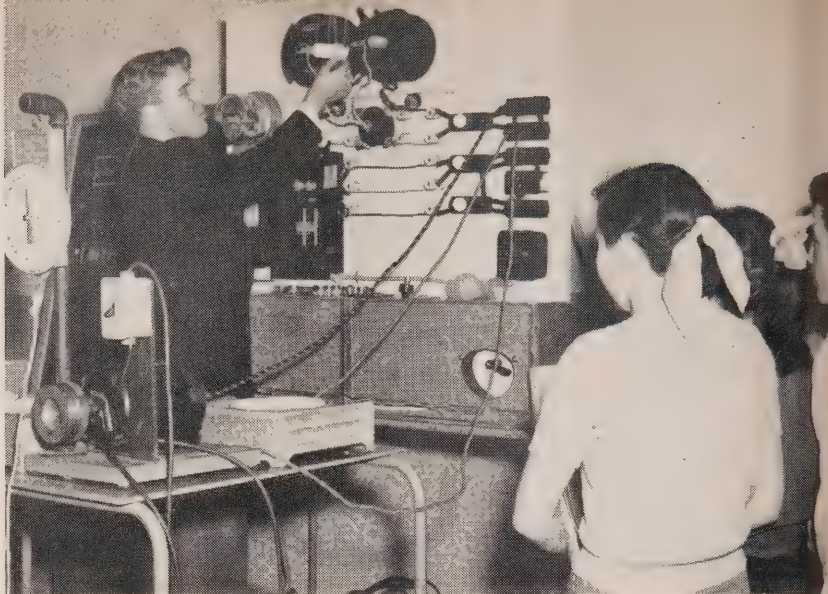


FEW PLACES in North America have played such an important role in the development of a nation as the Niagara Falls area, the distinguished visitor stated in replying to the address of welcome by Mayor E. M. Hawkins (right). Niagara visit was part of Southern Ontario tour.



# HYDRO "SCHOOL"

**Alliston Students  
and Farm Forum Groups  
Endorse Series of Lectures  
By Ontario Hydro Speakers**



W. S. Urquhart, Ontario Hydro Farm Service Adviser, illustrates the effect of an over-loaded circuit using a piece of paper to demonstrate the amount of heat generated. Watching the experiment are; Bernice Wood, left, Coral Gabinet, and Bill Shepherd.

**E**DUCATION to the people living in Alliston and district, 53 miles north of Toronto, has always been a serious and important business.

Confirming this strong belief stands Alliston's modern, \$535,000 Banting Memorial High School, named in honor of Sir Frederick Banting, the famous

co-discoverer of insulin, who was born and raised there.

As might be expected in this rich farmland area, the practical side of education is not neglected. Electric power, which is playing an ever-greater role as a "hired hand" is a popular topic of study.

Only four years ago, this interest in Hydro was manifested in a concrete way. L. M. Coutts, Hydro's Alliston R.O.A. Manager and W. A. Latimer, Chairman of Alliston P.U.C. at that time, in close co-operation with the public and high school authorities, in the area, spoke to some 1,450 school children in

Rural Public Relations Specialist, G. C. Burt, has no trouble in holding the attention of these boys as he presents a film depicting the labor-saving advantages of farm electrification. Some 480 students saw the films and demonstrations during two-day sessions of the Hydro "school."







For to-morrow's housewives, Edithemma Dighton, Hydro Home Economist, demonstrated the best methods of using and caring for electric appliances. Useful advice was given on conserving electricity by improved methods of meal-planning and in the preparation of food for cooking.

a series of addresses designed to better acquaint them with the Hydro story.

### High School Lectures

A few weeks ago some of these very children, now students at Alliston's 18-room high school, heard another side of the Hydro story in a series of 35-minute lectures, expertly scheduled by Principal Bruce McClausland.

Some 480 students during the two-day period, watched demonstrations of the hazards inherent in improper wiring, and saw films of modern applications of electricity on the farm, particularly in the kitchen. An afternoon lecture and demonstration session was also arranged for representatives of the local branch of the Women's Institute.

Highlight of the lectures given by Ontario Hydro representatives: W. S. Urquhart, Farm Service Advisor, Consumer

Service Division; G. C. Burt, Rural Public Relations Specialist, and Edithemma Dighton, Hydro Home Economist, was an evening meeting with members of six Farm Forum groups in the area.

This meeting under the chairmanship of Roy Reynolds, Chairman, Beeton Junction Farm Forum, was featured by an address by D. G. Ferguson, Manager, Georgian Bay Region, who prefaced his remarks by a resume of Hydro service in the Alliston area where 74.5 per cent of the customers are farmers.

### Growth In Alliston Area

"Today we are serving approximately 1,248 more customers than in 1947 and have added 207 miles of rural line," he said.

These figures are reflected by the fact that the average kilowatt-hour consumption in this area is the third largest in the Georgian Bay Region. Since 1947,

substation load in the Alliston area has almost trebled, with two additional substations in service and another station at Bradford scheduled for increased capacity in March, he pointed out.

Alliston's Area Manager, L. M. Coutts, illustrated how a few simple rules could reduce costly service calls to a minimum.

"Last year, the average cost of a service call to a customer's house was \$15."

Customers could reduce these calls by: "Correctly marking meter cards and returning them promptly; learning their respective concession and lot numbers, and in the case of power failure, checking fuses and outdoor service entrance switch."

Enthusiastic comments by Farm Forum representatives, many of whom expressed their interest in having these lectures repeated, indicated that this Hydro "School" had been both enjoyable and profitable.—By H. B. Wood.



# AWAITING "GREEN LIGHT" FOR IMMEDIATE START ON ST. LAWRENCE PROJECT

**Ontario Hydro Already Engaged  
in Surveying Site, Drilling for  
Soil Samples and Other Prelim-  
inary Work in the Area, Chair-  
man Saunders Tells Conference**

## **SEES PRESIDENT EISENHOWER**

ONCE the "go-ahead" signal has been given, Ontario Hydro will not waste "even one hour" in getting underway with its share of the proposed St. Lawrence Seaway and Power Project.

That expression of confidence in early approval of the great development featured an address by Hydro Chairman Robert H. Saunders at the second annual Heartland Conference in Washington, D.C. on April 30.

### **Interviews U.S. President**

While in the U.S. capital attending the important meeting, sponsored by the Great Lakes-St. Lawrence Association, Mr. Saunders was afforded the opportunity of a personal interview with President Dwight D. Eisenhower. In his informal chat with the U.S. Chief Executive, the Hydro Chairman made a personal appeal for early action on the St. Lawrence power project in which the President showed keen interest and understanding.

This highly-encouraging exchange of views was the Hydro Chairman's second meeting with the President. During the war years, as Mayor of Toronto, it was his privilege to officially welcome General Eisenhower, then Commander-in-Chief of the Allied Armies in Europe, during a visit to the Queen City.

In his speech during the enthusiastically-attended Heartland conference, Mr. Saunders removed any doubt as to the Commission's preparedness to proceed with the St. Lawrence power scheme.

Ontario Hydro, he said, has opened an office at Morrisburg, Ontario, and has

80 men working on the project at Head Office and in the field. Plans are also in an advanced state for transfer of one of the camps from La Cave (site of the Otto Holden Generating Station on the Ottawa River which was completed recently) to the St. Lawrence area. Within the next three or four weeks, he continued, the Commission expects to have a total of 117 men working on the vital project.

"We believe," he stated, "that the time has finally come when the St. Lawrence will become a realization in spite of the efforts of those selfish interests who have been responsible for depriving the people of your country and mine of the far-reaching benefits of this great project for so many years."

Although not speaking officially on behalf of the Canadian Government (Hon. Lionel Chevrier, Canadian Minister of Transport, outlined Canada's views on this subject during the dinner which followed the panel discussion in which Mr. Saunders participated), the Hydro



**AT THEIR recent conference in Washington, Chairman Robert H. Saunders and President Eisenhower recalled their first meeting at Toronto's City Hall during World War II when, as Mayor of Ontario's capital, Mr. Saunders officially welcomed the Commander-in-Chief of the Allied Forces in Europe during a goodwill visit to Queen City.**

Chairman assured his audience that "there will be quite a race to see who can break ground first—Ontario Hydro on the power project or the Canadian Government on the Seaway."

At the outset of his address, Mr. Saunders reiterated his profound belief in the need for, and the vital importance to the future of Canada and the United States of the St. Lawrence project.

### **"Great Gift"**

Expressing his regret that this "great gift" of nature has not, up to the present time, been made available to the peoples of both countries, the Hydro Chairman graphically illustrated what electric power has done for Canada. With an area greater than that of United States, including Alaska, by some 236,000 square miles, but with a population of only 14,500,000 people, Canada last year produced manufactured products with an estimated value of \$17,500,000,000—a striking figure when compared with the 1920 record of \$3,706,544,997.



## Canada's Record

Within a few years, she has become the world's third largest trading nation and the world's largest exporter of aluminum.

Today she ranks first in the world's production of newsprint and tungsten, and known deposits of titanium, while her uranium deposits place second. Moreover, she can boast of the largest railway (C.N.R.) in North America, and the world's greatest transportation system (the C.P.R. with its rail, ocean, lakes and air services).

This record of achievement and expansion has been made possible by increased use of electrical power. In 1920, Canadians used about 4,800,000,000 kilowatt-hours of primary energy as compared with the 1952 consumption of 55,568,346,000 kwhrs., as reported monthly by central electric stations.

Dealing specifically with his native province, Ontario, Mr. Saunders referred to the record of the past 13 years, during which industrial workers experienced a decrease of 13 percent in the average hours worked per week, while the value of manufactured products increased by 394 percent.

Industrial expansion in Ontario, he said, also has been made possible by a greater availability and use of electrical power: In 1939, a total of 8,426,240,000 kilowatt-hours of primary energy was used in Ontario—equal to the labor of 37,000,000 working men; in 1952, Ontario citizens used 21,048,921,000 kilowatt-hours—equal to a labor force of 94,000,000 men working eight hours per day for 200 days per year. "This is what electricity has done for

our people, and it is a striking example of the additional benefits that will be derived from the St. Lawrence power project which will generate power equal to the labor of 56 million men!"

What will St. Lawrence power cost?

Electricity from this tremendous source of energy will cost three mills per kwhr. at the plant, or just \$18,900,000 for the 6,300,000,000 kwhrs. available to each country.

"Just imagine this vast working force available to supplement the labor resources of Canada and the United States at 67 cents per man per year."

In dealing with the additional benefits which the St. Lawrence would make possible, Mr. Saunders said that from the Ontario grid, into which the St. Lawrence power will flow, comes 75 percent of Canadian-produced fine papers. The United States, he continued, depends upon Canada for more than 80 percent of its total requirements of newsprint.

It is interesting to note, also, that one-tenth of the total United States requirements of cobalt (important alloy used in jet aircraft production) comes from this area. From this region also comes 50 percent of Canadian copper output, of which a substantial portion is exported to United States.

Production of nickel, (four-fifth of the world's free nickel comes from Ontario's Sudbury basin, part of the St. Lawrence grid) is dependent upon power supplied by Ontario Hydro, while customers of the Commission in the same area process the only North American deposits of picrite, an essential salt in the manufacture of explosives.

In pleading for permission to develop

the power resources of the St. Lawrence River, Ontario is not mindful of its own expansion alone. The power available from this source is of equal importance "to the industrial life and defence program of United States."

Continued delays on the part of the United States in reaching a favorable decision on the project have forced Hydro into the position of introducing high-cost steam power into its systems, as well as further revisions and improvisations in its plans to avert a power shortage in 1957.

Latest move, he stated, is the decision to provide for additional generating capacity at its Sir Adam Beck - Niagara Generating Station No. 2 by creation of a water storage reservoir, pumping plant and other construction at the site.

This, he said, will mean higher-cost hydro-electric power than that available from the St. Lawrence River, but still less costly than steam-generated power.

Although Ontario Hydro is forging ahead with the Niagara project, it still needs power from the St. Lawrence by 1958. If the Commission is to have power by that time, then it must receive the go-ahead signal within the next few months at the latest.

"My plea, today, is that you make it possible, not through money, but rather through co-operation, for Canada's great development to continue at its present accelerated pace as it will if we have this power available to us."

**ONTARIO HYDRO'S** giant scale model of the proposed St. Lawrence Seaway and Power Project, which graphically depicts in miniature the great development delayed pending a "go-ahead" signal from the United States.







## FOTO-NEWS



◀ **NEW ERA**—"Red Seal"—symbol of adequate wiring in Ontario—may become the accepted standard throughout Canada as a consequence of the ceremony depicted in the photo on the left. It shows A. W. J. Stewart, Toronto Hydro-Electric System, President of the Electric Service League of Ontario (seated, left), signing an agreement which gives the Canadian Adequate Wiring Bureau the right to license the use of "Red Seal" by other service leagues and adequate wiring organizations in Canada outside Ontario. M. J. McHenry, Director of Consumer Service, Ontario Hydro, and President of the Canadian Adequate Wiring Bureau this year, is seated on the right, while standing, left to right, are J. F. Mowat, Manager, Electric Service League of Ontario, and D. S. Catton, first Manager of the C.A.W.B.



**METER COUNCIL**—S. B. Upper, Ontario Hydro, was re-elected Chairman of the Council of Metermen's Associations of Ontario at the semi-annual meeting in Toronto recently. A tentative schedule for spring meetings of the five-member Association was drawn up and papers available for presentation were discussed. A general discussion of the new meter regulations produced some interesting accounts of experiences with the regulations to date. The following members of the 1952 executive were re-elected for another year: J. P. Dawson, Vice-Chairman; N. J. Lake, Secretary-Treasurer; S. G. Steiss, Librarian, with C. E. McGuire and G. E. McClymont as C.E.A. representatives. Photo shows left to right: Earl Thornton, Ingersoll P.U.C.; Al Christie, North York H.E.C.; J. P. Dawson, Dunnville P.U.C.; G. E. McClymont, Chatham P.U.C.; N. J. Lake, H.E.P.C.; S. B. Upper, H.E.P.C.; C. E. McGuire, Ottawa H.E.C.; S. G. Steiss, Kitchener P.U.C.; D. I. Stitt, Morrisburg H.E.C.; and F. E. Schooley, Welland H.E.C.



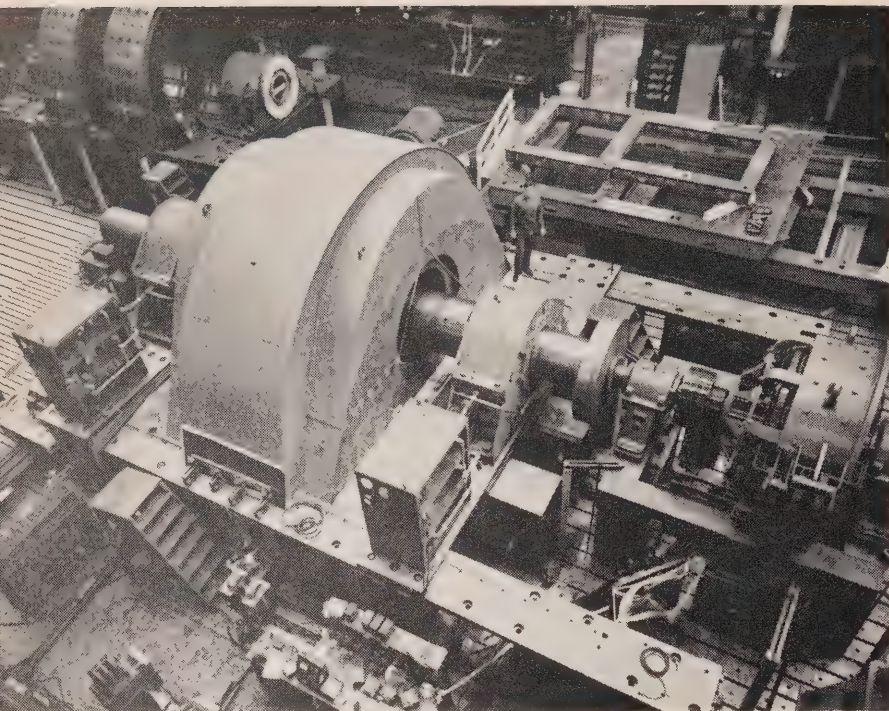
**318TH MUNICIPALITY**—On March 18, the Village of Casselman, 30 miles southeast of Ottawa, was officially welcomed into the Hydro family by Chairman Robert H. Saunders. Addressing a gathering of civic and provincial representatives, as well as school children, in the new St. Euphémie Separate School, Mr. Saunders congratulated citizens on their decision to affiliate with the province-wide Hydro system as the 318th municipality to purchase power under a cost contract. Casselman, with a population of approximately 1,158, was previously supplied with power from generating facilities owned by J. O. Coupal. The village actually was connected with the Ontario Hydro system on December 23, 1952, after completion of 10 miles of new transmission line and a new substation. Marking the event, O. S. Luney, Manager, Eastern Region, Ontario Hydro (left) and Omer Gour, M.P., Russell County (right) watch as Chairman Saunders greets Reeve Rene Boileau.



**SAFETY PROGRAM**—In the firm belief that accident prevention is beneficial to the employee and the employer, the Ottawa Hydro-Electric Commission recently instituted a "Safety in Foremanship" course for their foremen and chief operators. Consisting of 12 sessions, the course was conducted by G. R. Shannon, Safety Officer for the Eastern Region, Ontario Hydro. Specialized courses of this kind are one of the services rendered by the Eastern Region to local municipalities.

Subjects covered were: accident costs; methods of safeguarding for accident prevention; detecting unsafe working conditions; training of the new employee in safe practices; industrial housekeeping; vehicle accident prevention and fire prevention. General discussions were held during the course on work methods and the exchange of ideas was beneficial to all in attendance. Shown here are the members of the Ottawa Hydro who took the course: Front row, l. to r.—Lionel Charlbos, Frederick Finch, Frank Wright, Stewart Carrns, and Raymond Gill. Centre row, l. to r.—Harry Berndt, Jack Gilfillan, Albert Hewitt, Richard Shannon, William Ferguson, Samuel Crepin, and Frank Myles. Back row, l. to r.—Leslie Giles, Earl Spratt, Frank Benoit, Gordon McKinney, Clifford Briese, Douglas Hyde, Max Miller, and Joseph Robillard. Absent—Leonard Verdun.





**WORLD'S BIGGEST ROTATOR**—Work is being completed by Westinghouse Electric Corporation on what is regarded as the world's largest rotating machine for delivery to the U.S. Air Force Arnold Engineering Development Centre at Tullahoma, Tenn. The machine will be used to drive the compressors for the supersonic and transonic wind tunnel. Motors for the machine are said to be approximately 30 percent more powerful than any in operation at present. Two of the motors of the machine will generate 83,000 horsepower. They will be coupled with two, 25,000-hp. motors. Shown here during completion of tests is one of the 83,000-hp. motors, both of which stand 21½ feet high and weigh 225 tons. The completed machine, when finished and installed, will be more than 500 feet long, officials state. Many of the component parts "take the cake" for size. The blades for the compressors measure two feet across the face, and six feet in length, and weigh almost two-thirds of a ton apiece.

**PROOF POSITIVE**—Convincing proof that Ontario Hydro can undertake its share of the proposed St. Lawrence Seaway and Power Project—when the "green light" is received—without undue disturbance or inconvenience to the residents was offered civic and press representatives from the St. Lawrence area recently. Headed by Hon. George H. Challies, First Vice-Chairman, and H. D. Rothwell, St. Lawrence Liaison Engineer, Ontario Hydro, a 50-man group, representing Iroquois, Morrisburg and the Townships of Matilda, Osnabruk, Williamsburg and Cornwall, as well as Peter Manley, M.P.P., Stormont, attended a two-day preliminary conference with Chairman Robert H. Saunders and other Commission representatives. During the meetings, the group visited the A. W. Manby Service Centre at Islington where Dr. Otto Holden, Assistant General Manager—Engineering is shown explaining features of the giant model of the Sir Adam Beck No. 2 project at Niagara Falls, which civic leaders inspected as part of their discussions.







**LONG-SERVICE TRIO**—In recognition of their service to the community, three long-term employees of St. Catharines Public Utilities Commission were honored at the annual banquet for the commissioners and staff. George Taylor is shown with the silver tray presented to mark 25 years' service with the St. Catharines Commission, while Herbert H. Smith, retiring after serving the local utility as Secretary for 20 years, holds a parcel containing a similar tray. A 30-year button was presented to Bert Cooke (centre) during the ceremonies. Also shown are Commission Chairman Douglas Hunter (extreme left), and Commissioner W. B. Elliott (right), who made the presentations to Messrs. Taylor and Smith.

**STAFF SHIFT**—Changes in top administrative posts of Peterborough Utilities Commission took place on March 31 with Ross L. Dobbin, General Manager (extreme right), retiring after serving the commission since 1914. Standing next to him is his successor, W. Howard Powell, who has been Chief Engineer and Assistant General Manager of the Peterborough Commission since 1949. A graduate of the University of Toronto, Mr. Powell served three years with the Royal Canadian Engineers during World War II. On the extreme left is James Turnbull, who became Business Manager succeeding Howard Clegg, Works Accountant and Secretary, second from left, who also retired in March. Mr. Clegg, who has been associated with the Peterborough Commission since 1921, was born in Peterborough, assuming the dual positions of Accountant and Secretary in 1928. His successor, Mr. Turnbull, was born in Belfast, Ireland, and joined the local commission in 1928. He is active in several Peterborough organizations.







## ***Commission's Helicopter Flies in Motor-Generator Sets to Provide Temporary Electrical Service for Customers at Thorah Island***

# Hydro

**L**IFE on Lake Simcoe's Thorah Island was pretty dreary for three days recently when the vital flow of electricity was cut off, but — to the joy of three "stranded" farm families — the ingenuity of Hydro's technical staff soon brought light out of darkness.

Situated two miles across from the mainland at Beaverton, the island's 30 farm and summer customers received Hydro service for the first time in June of last year. To supply power to the island, engineers decided on the use of a two-mile submarine cable — believed to be the longest underwater link ever made by the Commission for a rural distribution line. When a fault occurred in the cable recently, the island was plunged into a complete blackout. The three farm families, sole residents of the island during the winter months, had already found their electrical service indispensable and even a short cut-off was a severe handicap.

An emergency crew from the Georgian Bay Region sped to the trouble spot, but soon found that ice conditions on the lake would make repair work slow and hazardous. At this point, resourcefulness took over and the Commission authorized the use of its Malton-based helicopter to fly in motor-generator sets for temporary electrical service to Thorah.

Arrangements were made as quickly as possible to set up an "air-lift" procedure, with the Beaverton Fair Grounds as the main base of operations. On Saturday, March 21, men and equipment were assembled to do the job. Under the direction of Line Maintenance Engineer T. J. Burgess, Jack Simpson, Operations Division Engineer, Toronto, and Morley Somers, Line Superintendent of the Georgian Bay Region, Barrie, a smooth "shuttle service" was worked out to take the generators across the icy stretch of water. Key man in the operation was Hydro's veteran helicopter pilot, Smith Pruner, who has seen his aircraft pressed into service

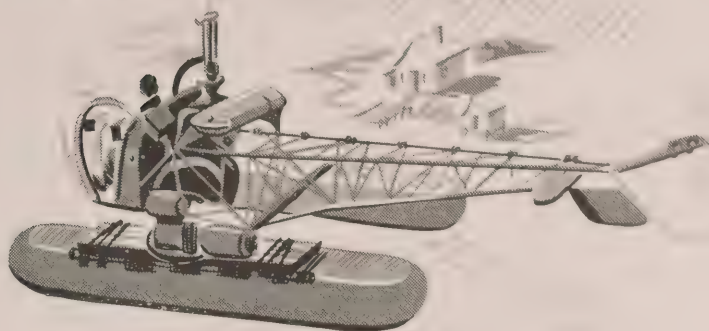
on many off-the-beaten-track assignments. Responsible for the technical side of the job were General Foreman Lloyd Pethick, Jack Mitchell and Lorne Beatty of Cannington R.O.A., Doug Carrigan, and Gerry Fraser.

### **Generators Mounted on Planks**

Because of limited space inside the helicopter, a way had to be devised to transport the motor-generator units most efficiently. Pontoons were placed on the helicopter, wide planks were fastened securely along the top of the pontoons, and the weighty generators were mounted on the planks. The final assembly presented a most unusual picture. To bystanders unfamiliar with the versatile aircraft, it looked as if the helicopter, with its added burden, would be unable to leave the ground; however, there was no doubt in the mind of the pilot. As the machine "revved up," Beaverton citizens — who had flocked to the fair grounds to witness the unique operation — watched anxiously.



◀ **READY** for the take-off to Thorah Island, Hydro's "power-laden" helicopter is shown at Beaverton Fair Grounds. With Pilot Smith Pruner at the controls, the versatile craft made four trips, flying in men and equipment to provide service.



**SOMETHING NEW** in outboard motors was devised for the Beaverton-Thorah airlift. To overcome hazardous ice conditions on Lake Simcoe, motor generator sets were securely mounted on helicopter's pontoons.

# Airlift"

Like a great, ungainly bird, perhaps from another planet, the helicopter raised itself a few feet into the air, poised momentarily, whirled around, gained height, and headed for the island. It took four round trips to complete the task of carrying technicians, motor generators and gasoline supply. On arrival at Thorah, the helicopter was able to land very close to the transformer poles on the three farms. The generators were quickly hooked up, the rural customers were given clear-cut instructions on their operation, and within a very short time, electricity was again flowing through the lines to serve the many needs of the three jubilant families. The helicopter mission was a complete success.

Once again, "the boys" had come through and Hydro customers were happy with their temporary, airborne service. That is what counted most. To the boys themselves, it meant that the show — and the power — must go on!

— by H. L. Hickey.





B.C. Electric Inaugurates  
82,000-Horsepower  
Wahleach Generating Station  
—Largest Unit  
in Company's Growing System



These giant transformers step up Wahleach power to 230,000 volts.



# HIGH HEAD STATION

**T**HE 82,000-horsepower Wahleach Hydro-Electric Station, most powerful generating unit in the B.C. Electric Company system, was officially opened by British Columbia Premier W. A. C. Bennett recently.

On hand to watch the ceremony in Hotel Vancouver were more than 300 guests of the B.C. Electric—provincial, civic and Fraser Valley officials, contractors and suppliers who helped to build the plant, and officers and employees of the company, headed by President A. E. Grauer.

Twenty-three months under construction, the power station cost more than \$9,000,000 to complete and turns out enough energy to light one million, 60-watt light bulbs.



Located on the Trans-Canada Highway about half way between Chilliwack and Hope, the plant's giant turbine draws water from Wahleach Lake, more than 2000 feet above it, behind Four Brothers Mountain.

To tap this potential, miners drove a tunnel 13,760 feet long through solid granite. Toughest section was a stretch of 1,890 feet hewn upward at an angle of 48 degrees.

### 2000-Foot Head

A steel penstock, 70 inches in diameter, carries the water the final step from the tunnel to the turbine. By the time the water hits the turbine, it has fallen nearly 2000 feet, one of the highest heads of any hydro-electric development in North America. On Wahleach Lake itself, two dams impound water and will, some time this year, raise the level 40 feet. The smaller structure diverts the waters of Boulder Creek into the lake.

To bring the energy down the Fraser Valley to Greater Vancouver—and then, at lower voltages back up the valley—a \$4,500,000 transmission line has been built. Its aluminum wires carry the power at 230,000 volts to a point in Surrey, where they join a circuit leading into Kidd Substation, on the banks of the Fraser near Marpole.

### High-Voltage Towers

The transmission line has created wide interest in engineering circles. Its 90-foot

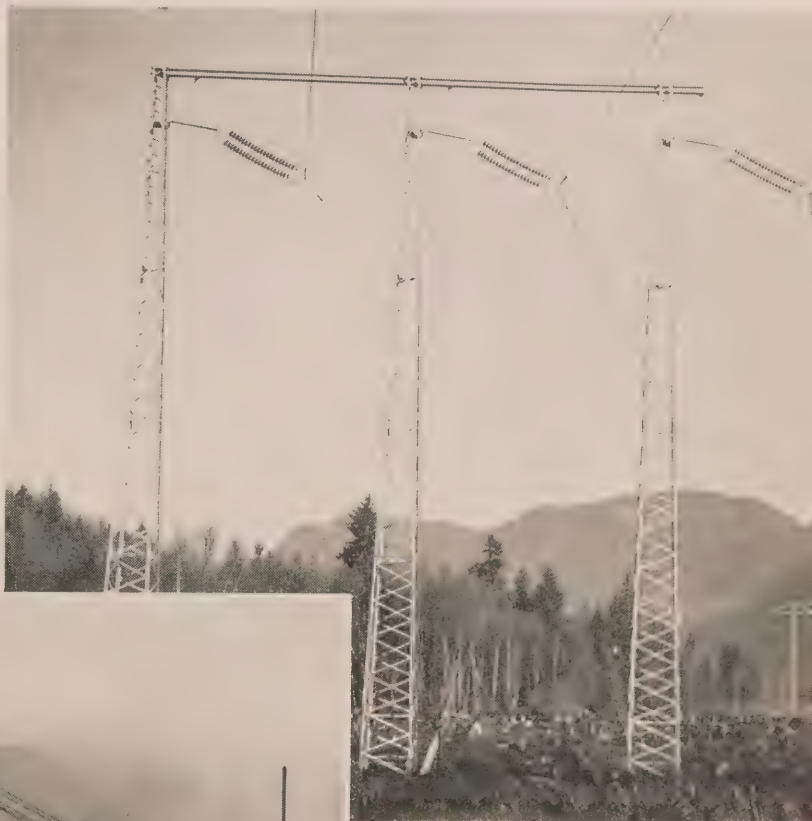
twin-boom towers, 340 in all, are the first of their kind to be insulated for 345,000-volt operation—more than 33 per cent higher than the usual standard.

Northern Construction Company and J. W. Stewart Ltd., were general contractors on the job. Vancouver Engineering Works made the 170-ton Pelton turbine while Vancouver Engineering Works turned out the 41 sections of 70-inch steel pipe that make up the penstock.

The steel towers, designed by BCE engineers, were made by Western Bridge Co. in Vancouver. Hume and Rumble Ltd., erected the towers, strung the conductors on them, and installed the wiring in the power house. The generator and the 325,000-pound transformer (biggest in B.C.) were made by Canadian General Electric, as were the various pieces of electrical equipment used in switching and controlling the energy.



VIEW of Wahleach switching area. Steel penstock in foreground conveys water from tunnel, 13,760 ft. long, to plant's huge turbine.



NEW 65-mile transmission line insulated to carry power at 345,000 volts is regarded as unique in N. America. Cost was \$4,500,000.

PLACING boulders at foot of spillway to distribute water during spring freshets. Spillway is located next to Wahleach Lake Dam, more than 2,000 feet above the powerhouse.





# EXTEND PROGRAM

## ***District 8 O.M.E.A. Delegates Hear Review of Plan to Promote Adequate Wiring of Ontario Homes***

**"T**HIS is a momentous year in Hydro history. We, as Hydro commissioners, owe a great debt of gratitude to the sturdy pioneers who first conceived the idea that Hydro power should be developed and distributed on a non-profit-making basis for the benefit of all the people in the province. This is an occasion for us to rededicate ourselves to the ideals for which they strove."

This message was addressed by Gordon H. Fuller, President of District No. 8, Ontario Municipal Electric Association, to the 147 delegates assembled for the annual meeting at the Sarnia Golf Club recently. It found reflection in a

session characterized by a unanimity of opinion rare even at Hydro gatherings where disputatious controversy is usually subordinated to constructive discussion.

Returning from a conducted tour of the Dow Chemical plant, one of the key industries of the petrochemical concentration in the Sarnia area, veteran commissioners were exchanging reminiscences of the "old days," while new members of the Hydro family profited by this opportunity to pick up the colorful background.

### **Adequate Wiring Program**

Due to weather conditions, W. Ross Strike, Q.C., Second Vice-Chairman, Ontario Hydro, who had been scheduled to address the meeting, was unable to be present.

M. J. McHenry, Director of Consumer Service, Ontario Hydro, was prevailed upon to address the delegates. Introduced by D. P. Cliff, Secretary-Treasurer of the O.M.E.A., Mr. McHenry, who was elected recently as President of the Canadian Adequate Wiring Bureau, pointed out that the program of the Electric Service

League of Ontario, the sponsors of "Red Seal," had been extended, at the request of Ontario Hydro, to promote adequate wiring of homes throughout the province. During the past three or four years reasonably satisfactory progress had been made, but it was quite obvious that the work would have to be considerably accelerated and intensified to meet the conditions of the times.

"At the present time," Mr. McHenry stated, "only 113 Hydro municipalities are actively supporting the League."

In order to make the program more effective, it was now proposed to form local industry councils in the major municipalities throughout Ontario. These councils would be composed of all branches of electrical utilities, and both their creation and maintenance would necessitate the energetic support of the municipal Hydro commissions.

"Instead of trying to direct all work at the local level from Toronto," Mr. McHenry explained, "we have in prospect local councils which will be a counterpart of the parent League. If these councils



DISCUSSING an interesting item of correspondence were D. P. Cliff, Sec.-Treas., O.M.E.A.; Tom Sherk, East York; Thomas Cada, St. Clair Beach, and Harold Cull, Kingsville.

COUNCILLOR William Boyd, left, was boosting Point Edward to E. A. Hodgson, A. T. Warwick and Mayor George Mickle, all of Ridgeway, when this photo was recorded.







FEATURE of the meeting was the election of officers for 1953. New executive: Seated, Dennis P. Herring, Sarnia, President; Stanley Thomson, Chatham, Vice-President. Standing, left to right, H. A. Luckins, Sarnia, Sec.-Treas.; J. D. Hawken, Wallaceburg; Ralph Burr, Point Edward, and Gordon Fuller, Windsor, Directors.

are to be formed, the local Hydro utilities must play a part in them. So I am appealing for the co-operation of Hydro commissioners throughout the province. Headquarters at Toronto will be glad to co-operate with each local council and assist them."

Without discussion or debate, the following resolution was passed unanimously:

"That District No. 8, O.M.E.A., reaffirms its support of the Electric Service League of Ontario and requests the Ontario Municipal Electric Association to further support the League by asking municipal commissions to foster adequate wiring promotion in their municipalities and to encourage their managers or superintendents to actively participate in local industry council activities."

#### Promoting Youth Activities

At the instance of the Amherstburg Public Utilities Commission, a resolution was passed requesting The Hydro-Electric Power Commission of Ontario "to consider a low or special commercial rate with respect to the lighting of ball parks, skating rinks etc. where these places were being operated on a non-profit basis to promote youth activities."

Officers were elected as follows: President, D. P. Herring, Sarnia; Vice-President, Stanley Thompson, Chatham; Secretary-Treasurer, H. A. Luckins, Sarnia; Directors—J. D. Hawken, Wallaceburg; Ralph Burr, Point Edward, and Gordon Fuller, Windsor.—By H. M. Blake.



PLENTY of the world's finest salt at Sarnia—seven layers, a mile or more deep, in fact—and D. P. Herring, President-elect, District 8 O.M.E.A., right, points out that electricity is used to mine and process it. "That's teamwork!" remarks Bryan Cathcart, M.P.P., Lambton West, left, as Gordon Muir, Dominion Salt Company, and M. J. McHenry, Director of Consumer Service, H.E.P.C., agree.





# Happy Reflections



## TORONTO HYDRO QUARTER CENTURY CLUB HOLDS ANNUAL BANQUET

**M**ORE than 550 members of Toronto Hydro's Quarter Century Club gathered recently in the ballroom of the Royal York Hotel for their annual banquet for long service employees and retired personnel.

Ten members were honored this year with presentation of 40-year pins, while 29 new members were introduced to the club and awarded 25-year pins and certificates. These certificates were first pre-

sented in 1948, and up to the present, 824 have been awarded by an appreciative management in token of loyal service.

This was the 25th meeting of the Club since it was organized by H. B. Kitchen and E. G. Flowers in 1929 as a 20-year service club. Although it was organized only 24 years ago, this year marked the 25th meeting through a switch in banquet dates several years ago. In 1935 the club was re-organized on a 25-year basis.



**NING THE BEST OF REFERENCES—25 years' service—29 new members were welcomed into comradeship of Toronto Hydro's Quarter Century Club and were presented with pins and certificates.**

### Resembles Family Reunion

This year's banquet and reception resembled, in many respects, a family reunion, complete with the presence of Louis Ruston, a retired member, who travelled all the way from Florida to be present for the dinner tendered by the Toronto Electric Commissioners and Management.

Under the chairmanship of Club President O. V. Anderson, a spirit of light-hearted informality pervaded the banquet. Introductions of guest speakers by Mr. Anderson ended, in each case, with an appeal to the audience to sing the song which he suggested was dearest to the speaker's heart.

### Commissioners Speak

Commission Chairman Loftus H. Reid, a staunch Ulsterman, rose to the tune of "Blue Bells of Scotland," while Bert Merson, Vice-Chairman and H. J. McIntavish, General Manager, two doughty Scots, were serenaded respectively with "Alouette," and "Way Down South in Dixie."

Mayor Allan Lamport was present also and addressed words of welcome to the

members and congratulations on their long-service records.

Mr. Reid congratulated the new members and thanked the retired personnel "for their excellent service in the past and the opportunity for happy reflections upon a well-spent life."

Bert Merson opened his remarks with the unexpected question: "Is there anyone here to-night wearing a \$650.00 watch?"

When there was no reply, Mr. Merson went on to explain how the absence of the traditional gold watches as tokens of long service to loyal employees had set him thinking.

### Equivalent of Gold Watch

"After some calculations of my own, and with the advice of one or two people, I found that the advantages which accrue to a Toronto Hydro employee, in comparison with employees of a commercial organization of similar size, on a conservative basis, amount to 50 cents a week. Multiply this by 25 years of service and you have a watch worth \$650.00."

Continuing, Mr. Merson stated that it was the policy of the Toronto Electric Commission to improve the working conditions of its employees wherever possible.

Banquet Chairman O. V. Anderson, on behalf of the Club members, thanked the Commissioners and Management for their generous support and co-operation in

making this 25th annual banquet an outstanding success.

### 606 Employees

Mr. Anderson pointed out that there were 606 employees as of January 1, 1953 with 25 years' service, constituting approximately 35.6 per cent of the payroll of 1703, as well as 205 retired employees.

The list of new 25-and-40 year mem

*(Continued on next page)*



**CHAIRMAN** of Toronto Hydro when the banquet was held, the late Loftus H. Reid, presented a 40-year pin to Ernest Secord (centre) while the newly-appointed Chairman, Bert Merson, smilingly echoed Mr. Reid's sentiments.



**SMILING HAPPILY** as they pass the 40-year milestone of service are these veteran Toronto Hydro employees, seated l. to r.—E. W. A. McKinley, Thos. Clerk, George Carnegie and Ernest Secord. Standing — Andrew Summers and Percy C. Chrysler.



## HAPPY REFLECTIONS

(Continued from previous page)

bers was read by Leo Simpson, a member of the Quarter Century Club Committee, as the Commissioners presented the pins. At the conclusion of the dinner, the guests enjoyed stage entertainment organized by S. L. Peer, Vice-President of the club.

Those receiving 40-year pins included: William J. Bryerton, George Carnegie, Percy C. Chrysler, Thomas F. Clerk, Edward Hyde, Reid McIntyre, Edison W. A. McKinley, Ernest G. P. Secord, Andrew Summers and Thomas Holliday.

### 25-Year Pins

Recipients of 25-year pins were: Frederick Brereton, Miss Myrtle F. M. Brodhecker, John H. Earle, John B. Farrell, Richard A. Finley, James Goodsir, Norman M. T. Griffin, James C. Hamilton, Arthur T. Hanna, Edward J. Hayes, William B. Hutchcroft, George Kennedy, William J. McGrogan, George H. Marsh, Arthur B. Murray, Howard C. Nevins,



Robert E. Owen, Clarence E. Perry, Paul Phipps, Edward C. Poulson, Roy C. Roberts, William D. Rowe, Bruce M. Shore, Edward V. Strohmayr, Gordon A. Sutherland, James W. Tait, Norman G. Trenchard, Edgar Veall, and Frederick J. Venn.—By H. B. Wood.

IT REQUIRES a second look at the records to realize that these three gentlemen, left to right, Norman Fisher, Herbert Powell, and Jack Bradford joined Toronto Hydro in 1910.

ALL SET to enjoy themselves, this group represents a cross-section of the 555 members and retired personnel who attended banquet.





# BUSY SESSION

ANNUAL MEETING OF DISTRICT 5 O.M.E.A. FEATURED BY LIVELY DISCUSSIONS



DISTRICT 5 executive this year includes, front row, left to right, Thomas Barnes, Niagara Falls, Director; Dr. Fred Barron, Paris, President; Roy Pierson, Brantford Twp., 1st Vice-President. Standing, l. to r.—Directors: Frank Kauff, Merriton; C. R. Buss, Thorold, and W. B. Elliott, St. Catharines. Absent—Geo. Boucher, Paris, and Wm. Watterson, Welland.



MAYOR L. D. JACKSON, Hamilton, extended official greetings to the delegates, emphasizing important role of electricity in Ontario.

**D**R. Fred Barron, Paris, was re-elected President of District 5 O.M.E.A. during the annual meeting at Hamilton.

Other members of the 1953 executive elected were: Roy Pierson, Brantford Township, and William Watterson, Welland, Vice-Presidents; C. R. Buss, Thorold, W. B. Elliott, St. Catharines, F. R. Kaupp, Merriton, and Thomas Barnes, Niagara Falls, Directors, and George Boucher, Paris, Secretary-Treasurer.

## Pass Resolutions

Speakers during the business session were C. H. Schwenger, Toronto, and William Hogg, Assistant Field Project Engineer at Ontario Hydro's Sir Adam Beck—Niagara No. 2 project.

Discussion throughout the afternoon was spirited, resolving itself into the adoption of three resolutions.

A resolution, the details of which were thoroughly promulgated to the members by its author, Fred Cavers, St. Catharines, recommended:

"Whereas, the O.M.E.A. has received the assurance of the H.E.P.C. that the cost of Frequency Standardization would be borne by the entire Southern Ontario System, and whereas, the 1951 H.E.P.C. annual report indicates that the cost of frequency standardization is now being borne by the Niagara System alone;

"Therefore, be it resolved that District 5 strongly protests this change and requests that the method of paying for frequency standardization be borne as originally intended and submitted to the O.M.E.A. for approval when the Stone and Webster, and the Clarkson, Gordon Reports were presented."

A second resolution introduced by Robert Carmichael, Dundas, and adopted by the members stated:

"Whereas in order to secure some standard of wages and working conditions in all the hydro-electric utilities not covered by employee agreements;

"Therefore be it resolved that District 5 O.M.E.A. requests that a committee of O.M.E.A. and A.M.E.U. members of this district be elected to consult with municipalities concerned, and present to District 5, their findings and recommendations, and that a copy of this resolution be forwarded to each of the O.M.E.A. districts."

During a short discussion, it was unanimously decided by the members to continue holding two meetings of District No. 5 annually.

## Guest Speaker

Guest speaker at the dinner, tendered by the Hamilton Hydro-Electric Commission, was W. J. McCullough, Personnel Manager, Hamilton Street Railway.—*By H. B. Wood.*



Foster Hewitt's Radio Station CKFH  
Presenting Popular Morning Program  
from Toronto Hydro's Modern Kitchen



# Foster-ing the Kitchen



FOSTER HEWITT, Canada's ace "hockeycaster," appears in the new role of chef during his CKFH "Variety Kitchen" program, broadcast daily from modern electrical kitchen of the Toronto Hydro-Electric System with Toronto Hydro's Secretary and Director of Public Relations, Douglas Moffitt, left, and Helen Craig, the program's comely commentator.

**H**E'S MORE at home with the Rangers than the ranges, and the Leafs he sees come tumbling down are hardly from cookbooks.

But it is a fact that "Canada's Best-Known Voice" is in the culinary business in a big way. He and his staff at Radio Station CKFH, Toronto, definitely know "what's cooking,"—proof once again, if proof is needed, that Foster Hewitt is

"big league" whatever he does.

Five times a week, Mondays through Fridays, from 10.05 a.m. to 11.00 a.m., EDST, CKFH broadcasts from the modern electrical kitchen in the main building of the Toronto Hydro-Electric System, at 14 Carlton Street in the "Queen City," a program known as "Variety Kitchen."

Not that Foster Hewitt finds it necessary to describe stickhandling a limp

cabbage salad past a solid defense of mashed potatoes. Nor does he yell "He scores!," as the butcher runs a knife up and down the back of a pork-roast. The broadcasting chores on "Variety Kitchen" are ably handled by members of his staff, who are daily entertaining and instructing a large group of radio listeners, as well as an enthusiastic participating audience.

**PARTIAL VIEW** of the audience during one of the five-a-week broadcasts of "Variety Kitchen" program which is designed to appeal mainly to the ladies.





### Good Sample

The initial "show" was a good sample of what has followed in the way of bright entertainment for the housewife. The potpourri of audience interviews, cooking demonstrations, news slanted for women, and quizzes adds up to a fine 60 minutes, not only for the ladies, but also for those hardy gentlemen who tune in or attend in person.

A professor from India, a student on scholarship from Trinidad, a missionary just back from China, a group of ladies from the Thota Club of Toronto, a chemist and head salesman of rival bread companies who gave interesting data on the new vitamin-enriched bread which was being introduced, all added spice to the variety menu offered on that first program. The premiere showed that the broadcasts to follow (for a daily radio program, like a new car, has to be broken in gradually) would be of a high calibre, and subsequent listenings have confirmed this to be the case.

### A Young Veteran

Much of the success of the show is, of course, due to the pleasant personalities associated with it. The mistress of ceremonies (or on a "Variety Kitchen" is it "chief cook and bottle-washer?") is personable Helen Craig, who, like Lochinvar, came out of the West, where she had been successful in various fields of women's work. Young Miss Craig was born at Viscount, Sask., and attended Victoria College in Toronto. After graduation, she was personal shopper and fashion co-ordinator for the Hudson's Bay Company at Saskatoon. Later Miss Craig held the important job of director of advertising for the Saskatchewan Government's Bureau of Publications. Fol-

lowing a stint as a free-lancer on TV and radio in San Francisco, she took over women's programs and the cooking school for stations CFQC and CKOM at Saskatoon. From there, it was a natural step to Toronto and CKFH.

### Easy "Mike" Manner

The announcer and "Man Friday" on the show is George Wilson, a native of Markham, who has an easy "mike" manner and a way with the ladies, both necessities on a program like "Variety Kitchen." George has been around the announcing map, having worked for the Canadian Broadcasting Corporation, the Columbia Broadcasting System in California, and announced the famous "Jane Grey" show over CHML, Hamilton, for two years, before settling at CKFH.

Another feature of this attractive program is Toronto Hydro's dream kitchen. The ladies who attend the program "ooh" and "aah" delightedly over the shining equipment, including electric refrigerators, stoves, dishwashers, and a gleaming galaxy of other appliances, as they examine every item carefully after the broadcast is over. Many find it worth the trip to Carlton St. just to see this studio "scullery," established by the Toronto System as a public service to its customers.

The other day, Foster Hewitt decided to demonstrate his abilities as a chef. He donned the proper cap, the colorful apron, and assumed the proper poses, but somehow, even with a dream kitchen to work in, everything he turned out tasted like hash.

"I guess," said Foster sadly, after sipping what was supposed to be soup, "I'd better stay in my own league, and leave the gastronomical feats to Bob Saunders."

—by Horace Brown.

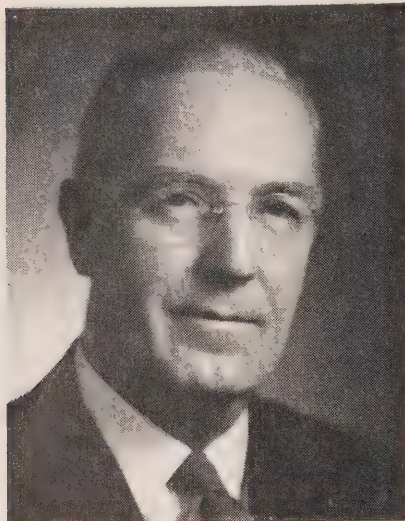


GEORGE WILSON, "emcee," seems intent on "lifting" something from tempting dish Miss Craig is taking out of the refrigerator.

WHILE Helen Craig rehearses for next day's show in the gleaming Toronto Hydro kitchen, "Chef" Hewitt and Announcer Wilson do a few chores at the sink while Doug Moffitt and Robert Pugh, program producer, "mop up" a few "goodies" prepared by Miss Craig for her daily broadcast.

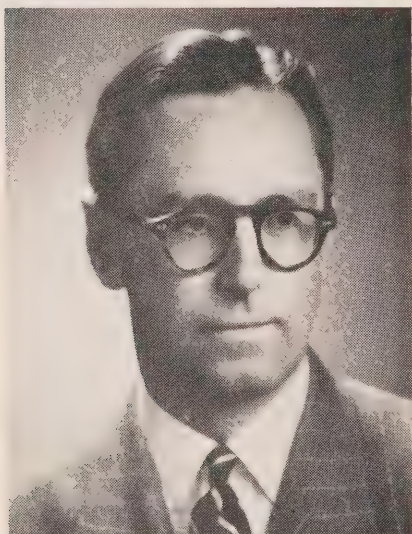






G. A. HONSBERGER

**D**UE TO the increasing pressure of work, it has been found necessary to effect certain changes in the Comptroller's Division of Ontario Hydro, E. H. Banks, Comptroller, announced recently. The principal changes involve the appointment of G. A. Honsberger, Chief Accountant, as Assistant Comptroller and of G. F. Davis to the position of Chief Accountant.



G. F. DAVIS

### **Windsor Commission Completes Survey**

A recent survey of domestic customers, conducted by the Windsor Utilities Commission, showed that more than 25,000 customers used less than 1,000 kilowatthours of power during a two-month period, and 4,460 customers used between 1,000 and 2,000 kwhrs.

An increase of 528 customers was recorded during the past year, bringing the total at the end of 1952 to 35,330. Of this number, 30,610 were domestic, 4,085 commercial, and 635 power customers.

There were 2,085 flat-rate water heaters owned by the Windsor Hydro as well as 175 owned privately, and 110 units were equipped with boosters.

### **Extend Boundaries, Redesignate R.O.A.**

Owing to customer and other growth within the area, Ontario Hydro has approved plans to establish headquarters of its present Crystal Falls Rural Operating Area at Warren. At the present time this particular R.O.A., with over 2,300 customers and 345 miles of line, is being operated from a sub-office in Warren under the Commission's North Bay Area Office.

When a complete operating organization has been established at Warren, the present name will be changed to Warren R.O.A. Plans also call for extension of present southern and western boundaries to cover lines already constructed beyond these boundaries and to include new territories in which customers may be served. The boundary between the new area and the North Bay R.O.A. will be changed to include the Crystal Falls Generating Station in the North Bay Area.

### **Hospital To Have Direct Power Line**

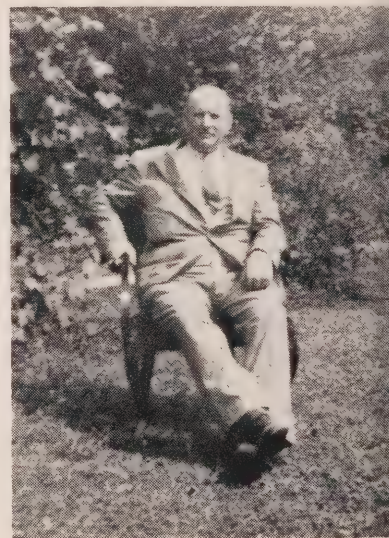
Brockville Public Utilities Commission will begin installation of an altered connection to the Brockville General Hospital to reduce the dangers of power failure. Cost of the work is not expected to exceed \$1,000. The decision to make the

change was taken as the result of power failures in December of last year, when the institution was without power for considerable periods.

In approving the alteration, the local Commission recommended that provision for standby power be made by both the Brockville and St. Vincent de Paul Hospitals.

### **Fort William Growing, Enlarge Substation**

Chairman C. H. Moors, Fort William Hydro-Electric Commission, in a recent ceremony, threw the switch to officially put into service the second 4,000-kilowatt transformer in the Hardisty Street substation. Cost of the new unit was approximately \$84,000. The new unit, along with a similar 4,000 kw. unit installed last year, will serve some 3,000 customers. Power consumption in Fort William is increasing at the rate of eight percent, or approximately 3,000 kilowatts annually, with the present peak load being approximately 33,000 kilowatts.



ALFRED HILLARY

Beachville lost an invaluable citizen recently with the passing of Alfred Hillary, Chairman of the Board of Trustees of this police village. The Board of Trustees handles all matters pertaining to the local Hydro system. Mr. Hillary was serving his sixth year as a member of the Board at the time of his death. Manager of Neilson Creamery at Beachville, the deceased was widely and favorably known through his association with many local and district organizations.



# Will Increase Niagara Capacity To Meet Future Load Growth

**I**N a news release, issued as this edition was going to press, Hydro Chairman Robert H. Saunders announced that the Commission had authorized an important plan to provide additional generating capacity at its Sir Adam Beck-Niagara G.S. No. 2 project.

The initial stage of new construction which will cost an estimated \$5,000,000, will begin immediately at the 2¼-mile open-cut canal section of the Niagara development.

Designed to furnish additional peak resources in the most economical manner to meet estimated load growth in the Southern Ontario System and the North-eastern Region, the plan involves creation of a water storage reservoir and pumping plant; widening of part of the power canal now being excavated, and other construction at the site.

## Adequate Water Supply

Through the use of the new reservoir, Ontario Hydro will be assured of an adequate supply of water to obtain the maximum output of the 1,200,000-horsepower plant which is scheduled for initial operation next year. When water flows from the reservoir back into the canal as needed, the pumping equipment is operated in reverse — thereby acting as a turbo-generator. In this way, Hydro will have available a maximum generating capacity of 225,000 hp. over and above the installed capacity of the 12-unit plant under construction.

## Four Additional Units

By widening the canal at the present time, and with the reservoir available, it will be possible to operate four additional units to be installed as required. This would give the station an ultimate capacity of 1,600,000 hp. in 16 units.

The construction planned, in addition to widening of the power canal and building of the reservoir, also calls for excavation of a portion of the cross-canal to connect the new canal to the storage reservoir; building of part of the head-works for the additional generating units, and certain work on the substructure for Unit No. 13 to be installed at a later date.

If this work were undertaken later it

would be at much greater cost and create a hazard to equipment in service. Under present plans, no date has been set for installing the additional generating units in the powerhouse. Future load growth and the amount of other resources available will establish the time for this phase of the work, the Hydro Chairman stated.

The necessity of increasing the generating capacity of the Sir Adam Beck No. 2 plant has been indicated by the Commission's long-term load studies. These load studies envisage a peak power deficiency on the Southern Ontario System of 475,000 kilowatts in October, 1957, and 140,000 kilowatts in December of that year. This forecast is based on a conservative yearly load growth of 6.4 percent, assuming that all generating facilities presently authorized will be in service by that time.

Even if the proposed St. Lawrence Seaway and Power Project received a favorable decision in the very near future, it would not be available in time to meet the peak deficiencies in 1957. Alternative resources, therefore, must be provided to meet the conditions occurring in that year. The new storage reservoir at Niagara, enabling the Commission to use, for power production, the maximum amount of water allowable under the Niagara Diversion Treaty (which varies over the 24-hour period during the summer) would offset the deficiencies estimated for 1957.

## Niagara Diversion Treaty

The new treaty is rather flexible, written first to protect the scenic beauty of the Falls and gorge, and also to permit maximum available water for power generation. From April 1 to September 15 between the hours of 8 a.m. and 10 p.m. a minimum of 100,000 cfs. must flow over the Falls. This period is reduced by two hours during the period from September 16 to October 31. All water in excess of this can be used for power purposes. At all other times flow in excess of 50,000 cfs can be used for power generation.

During the non-tourist season (November 1 to March 31) all flow in excess of 50,000 cfs, can be used for power except

when it is necessary to flush ice out of the gorge below the Falls. Under the new treaty, half of the diversion will be available in Canada and half in the U.S. Canada is allowed an additional 5,000 cfs of water that the Commission diverts from the Hudson Bay drainage area.

In the event that an early start is made on the proposed St. Lawrence Seaway and Power Project, the Commission hopes to have the first two units of this development in service by June, 1958. On this basis, and with the reservoir at its disposal, it will be in a position to overcome the peak deficiencies estimated for 1958 and 1959. Previous considerations regarding peak reserve included 100,000 kilowatts of high-cost thermal power in 1959. The decision to proceed with the reservoir will eliminate the need for this amount of expensive thermal power and also provide at least 10 percent peak reserve for that period. In 1960, surplus resources of about 350,000 kilowatts or eight percent of the estimated load will be available, while in 1961, Hydro will be able to cover any peak deficiencies likely to occur from October to December. "I must emphasize very strongly," said Mr. Saunders, "that the urgency and need for power from the St. Lawrence are in no way lessened by our expanded program at Niagara. While we still have high hopes for an early start on the St. Lawrence, despite prolonged delays, we cannot stake Ontario's future on prospects alone. It is imperative that we take positive steps — and at once — to head off any anticipated power shortage. That is why we turn again to Niagara. It represents the most economical and immediate means of improving our position to help meet the challenge of 1957 onward."

## VICEREGAL VISIT

*(Continued from page 7)*

Addressing the students, he told them that he had travelled some 22,000 miles throughout Canada in the past year. He urged Canadians to retain their individualism and their national characteristics.

Referring to his visit to the Hydro project earlier in the day, he said: "This vast, exciting, almost staggering project, going on here right before your eyes, is an example of the variety of activity in Canada today. We are developing a Canadianism, a self-respect, and self-reliance. These are the traits that make a nation great. We should do everything we can to preserve them."



## AROUND THE HYDRO CIRCUIT—Continued

### Hydro Shop Manager Dies At Stratford

A. N. Robinson, 57, Manager, Stratford Public Utility Commission Hydro Shop, died recently after a lengthy illness.

Born in Gravenhurst in 1896, and educated locally in the public and high schools, Mr. Robinson joined the Gravenhurst Electric Light & Water Commission on graduation. He worked at Gravenhurst for four years, leaving to join the Canadian Expeditionary Force. After duty overseas, he returned to Canada in 1919, and following a short time at Alliston, joined the staff of Stratford P.U.C.

Mr. Robinson was an ardent member



A. N. ROBINSON

of the local Rotary Club, having attended 1,100 consecutive meetings before he became ill. He had served as Director of the Club for several terms, and for some time was Sergeant-at-Arms. He was President of the club during the 1944-45 term, and at the time of his death was an honorary member. Other affiliations included membership in Stratford Masonic Lodge, No. 332, the Chamber of Commerce, and the Canadian Kennel Club. He attended Ontario St. Baptist Church.

Besides a keen interest in horticulture and sport, particularly hockey, Mr. Robinson was a well-known dog fancier and had won many prizes at various shows. He taught Applied Electricity during several night school terms at the Stratford Collegiate-Vocational Institute. Surviving besides his wife and his mother, are three sisters.

### Appoint St. Lawrence Liaison Engineer

**H.** D. ROTHWELL, formerly Administrative Assistant-Regions, Ontario Hydro, has been appointed Liaison Engineer for the projected St. Lawrence Seaway and Power Project on the staff of Dr. Otto Holden, Assistant General Manager-Engineering.



H. D. ROTHWELL

Mr. Rothwell will assume responsibility within the Commission for general co-ordination of St. Lawrence Power matters, other than technical and engineering features. He will act in liaison with interested local, provincial and federal groups.



R. H. HILLERY

R. H. Hillery, formerly Operations Engineer, Toronto Region, will assume the position vacated by Mr. Rothwell.

### Bulb Records

**W**HEN Windsorite Steve Kerckes reported an electric light bulb in daily use for 25 years, it prompted another local citizen, Mrs. M. Birk, to go one better and claim the possession of two bulbs in daily use for 27 years.

The two bulbs with the 27-year record were purchased from Hydro, Mrs. Birk stated. In the case of the runner-up for the title of "oldest electric light bulb," Mr. Kerckes revealed that he brought it from Austria in 1927, and claims that it has been in use 10 hours daily ever since. It is globe-shaped and provides illumination equivalent to a Canadian 60-watt bulb.

### Hydro Department Shows Profit in 1952

St. Thomas Public Utilities Commission reports a new profit in the Hydro department of \$32,696.19 and total revenues of \$489,621.06 during 1952.

An increase of 171 Hydro customers during the year brought the total to 6,353. The largest gain, was 146 domestic customers, with the local utility serving a total of 5,547 by the end of the year. Commercial customers increased from 680 in 1951 to 700, while the number of power customers jumped from 101 in 1951 to 106 at the end of 1952.

A total of 61 water heaters were placed in service, bringing the total at the end of 1952 to 2,507; 112 electric ranges were added bringing the total to 3,026. A peak load of 10,095.5 kilowatts occurred in December, 1952.



LOFTUS H. REID

**A**S THIS issue was going to press, word of the sudden passing of Loftus H. Reid, President of the O.M.E.A. and Chairman of the Toronto Hydro-Electric System, was received. Mr. Reid, who was born in Northern Ireland, succeeded Frank H. Plant, of Ottawa, who died suddenly last November, as President of the O.M.E.A., being unanimously re-elected to the presidency at the annual convention in February this year. A gifted public speaker, the deceased was prominent in civic and provincial affairs as well as fraternal circles for many years.

*The family of the late Mr. Reid has requested Ontario Hydro News to express, on their behalf, their warmest appreciation of the numerous tokens of sincere sympathy extended by Mr. Reid's many Hydro colleagues and friends.*



## ELECTRIC CLUB NAMES OFFICERS



A. E. FORT

**E**FFECTIVE May 1 this year, Arthur E. Fort, Manager and Secretary, St. Mary's Public Utilities Commission, will assume the position of Superintendent of Port Colborne Hydro-Electric Commission, succeeding A. W. Pratt, who has taken up new duties with Welland Hydro-Electric Commission.

Associated with the St. Marys Commission for approximately six years, Mr. Fort took a keen interest in community activities, being an active member of St. Marys Rotary Club and St. James Anglican Church, where he was a choir member and a member of the board of managers. Both Mr. and Mrs. Fort, as well as their two daughters, Jacqui and Janice, were particularly interested in the work of the local Little Theatre. Mrs. Fort is at present Vice-President of the Western Ontario Little Theatres group. Their eldest daughter, Jacqui, will remain in St. Marys, where she conducts a large school of tap dancing and ballet (*Hydro News*, December, 1951).

### **Etobicoke Hydro Plans System Improvements**

Plant additions and extensions to and rehabilitation of the electrical distribution system in Etobicoke Township this year are planned by the Etobicoke Township Hydro-Electric Commission at a cost of \$747,377. The program, which will be financed in part by a debenture issue of \$430,000 by the Township of Etobicoke, has been approved by Ontario Hydro.

**M.** B. HASTINGS, President of Powerlite Devices Ltd., was recently elected President of the Electric Club of Toronto at the annual meeting and election of officers. C. A. Ogilvie, N. C. Slater Company, was appointed a Vice-President, and C. A. Morrison, Canadian General Electric Company, and S. R. Spence, National Carbon Ltd., were elected to the executive committee.

Mr. Hastings graduated in engineering from the University of Toronto, and, in 1911, became Illuminating Engineer for the City of Toronto. Late in 1912 he joined Winter Joyner Ltd., now Powerlite Devices Ltd., to organize a new street-lighting department.

During the first World War he served with the Canadian Army, and was awarded the Military Cross. During the Second World War he organized and commanded the first R.C.E.M.E. (Reserve) unit in Canada, and recruited it to full strength, 18 percent of the personnel volunteering for active service. In November, 1945, he retired with the rank of Lieutenant-Colonel.

Mr. Hastings is a Past Chairman of the Toronto Section, American Institute of Electrical Engineers; the Illuminating Engineering Society, and is Vice-President-elect of the Canadian Regional Illuminating Engineering Society. He is a Past President of the University of Toronto Alumni Association; the Engineering Alumni Association, and is, at present, a member of the Senate of the University of Toronto.

Other members of the 1953-54 executive are: Past President, J. G. Inglis, Toronto Transportation Commission; Vice-Presidents: George T. Dale, Electrical Maintenance and Repairs Co. Ltd.; E. W. McLeod, Ontario Hydro; I. M. MacLean, Canadian General Electric Co.; H. M. Morris, Bell Telephone Co.



M. B. HASTINGS

of Canada; H. R. Fardoe, Moloney Electric Co., and C. A. Ogilvie, N. C. Slater Co.; Secretary, I. D. A. Cook, Bell Telephone Co., and Treasurer, W. E. Pointon, T.C.C.; Executive Committee: J. A. Clish, Northern Electric Co.; W. J. Wylie, Toronto Hydro-Electric System; W. G. Pengeley, Canadian Westinghouse Co.; G. A. Brace, Ferranti Electric Co.; T. A. Lindsay Automatic Electric (Canada) Ltd.; George Appleton, T.H.E.S.; J. H. Smith, C.G.E.; W. H. Patterson, T.T.C.; R. L. Mooney, Square D. Co. Ltd.; J. R. Montague, H.E.P.C.; C. D. McCaig, Amalgamated Electric Co.; W. N. Herod, Canada Wire and Cable Co. Ltd.; H.E.C. Smith, Bell Telephone Co.; Leonard Roberts, Canadian Controllers Ltd.; A. G. Haley, Northern Electric Co.; Noel Holmes, British General Electric (Canadian) Ltd.; C. A. Morrison, C.G.E.; and S. R. Spence, National Carbon Ltd. Auditors: W. D. Brown, Minneapolis-Honeywell Regulator Co., and R. R. Logan, T.H.E.S.

### **Port Arthur Reports Power Consumption Jump**

Port Arthur Public Utilities Commission reports an increase in power consumption during 1952 of approximately 17 million kilowatthours, or 14.3 percent over 1951. Total of Hydro customers at the end of 1952 was 10,040, with 195 domestic customers added during the year.

### **Bronte Commission To Improve Facilities**

Extensions and improvements to the electrical distribution system and change-over from 2300 to 4000-volt operation are planned this year by the Bronte Light and Power Commission at an estimated cost of \$18,125. The program will be financed by a \$20,000 debenture issue floated by the Corporation.



# Expand 60-Cycle Facilities

**W**ITH general changeover from 25 to 60-cycle power in Toronto due to start late next year, Ontario Hydro will undertake an extensive program to expand 60-cycle power transformation facilities in the Toronto area, including installation of a new \$891,000 transformer station in the east end lakeshore district.

The new 60-cycle station expansion is also designed to take care of rapidly growing industrial and commercial loads in the city being picked up at 60 cycles through advance standardization. The program is to be a joint operation with the Toronto Hydro-Electric System.

In addition to the entirely new station, the program calls for additions to or initial installations of transformation equipment at five of the Ontario Hydro's established terminal stations elsewhere in the city, and at one terminal station in York Township. The latter will supply 60-cycle power to North York, York Township, Forest Hill and Weston, following changeover in these areas.

Work will start late this year on the new station, which will be located just north of the Ontario Hydro's Richard L. Hearn Steam Generating Station on the Toronto waterfront. To be named Toronto "Basin" T.S., it is being built at the request of the Toronto Hydro.

It will also serve as a contingency against possible growth in the area due to the St. Lawrence Seaway. There is the possibility that the Seaway will spur heavy industrial development along the city's eastern lakefront; it could make it an important harbor area.

## Double Capacity

Not including the York Township station addition, the new facilities will more than double the present installed 60-cycle transformer capacity of the Ontario Hydro in the city.

For over two years, new industries and commercial establishments in Toronto, or



**AERIAL VIEW** of section of Toronto near junction of Yonge (extreme left) and Carlton Sts., with main office of Toronto Hydro-Electric System and the Maple Leaf Gardens visible in the centre foreground.

those concerns making substantial additions to plant facilities, have been able to take advantage of the Hydro's plan to provide 60-cycle power in advance of general standardization schedules. Accounting only for the number of industrial and commercial users in the Toronto area who have applied to date for advance 60-cycle power, it is estimated savings will reach approximately \$4,000,000, and will become substantially higher in coming years.

By the end of January this year, there were 364 industrial accounts on the Toronto Hydro's 60-cycle system, of which 255 were plants making additions to existing facilities and having the balance of their 25-cycle equipment changed over to 60 cycles, and the rest—109 in all—new plants which were able to make initial installations at 60 cycles. On the same basis, 926 commercial customers in the city had received 60-cycle power.

City hospitals are among customers now adding new load at 60 cycles.

## Duplicate System

The 60-cycle advance program will help substantially to reduce the actual number of industries and commercial premises requiring changeover when general conversion gets under way in the city. At the same time, the Toronto Hydro is now working on another phase of preparation work concerning domestic customers.

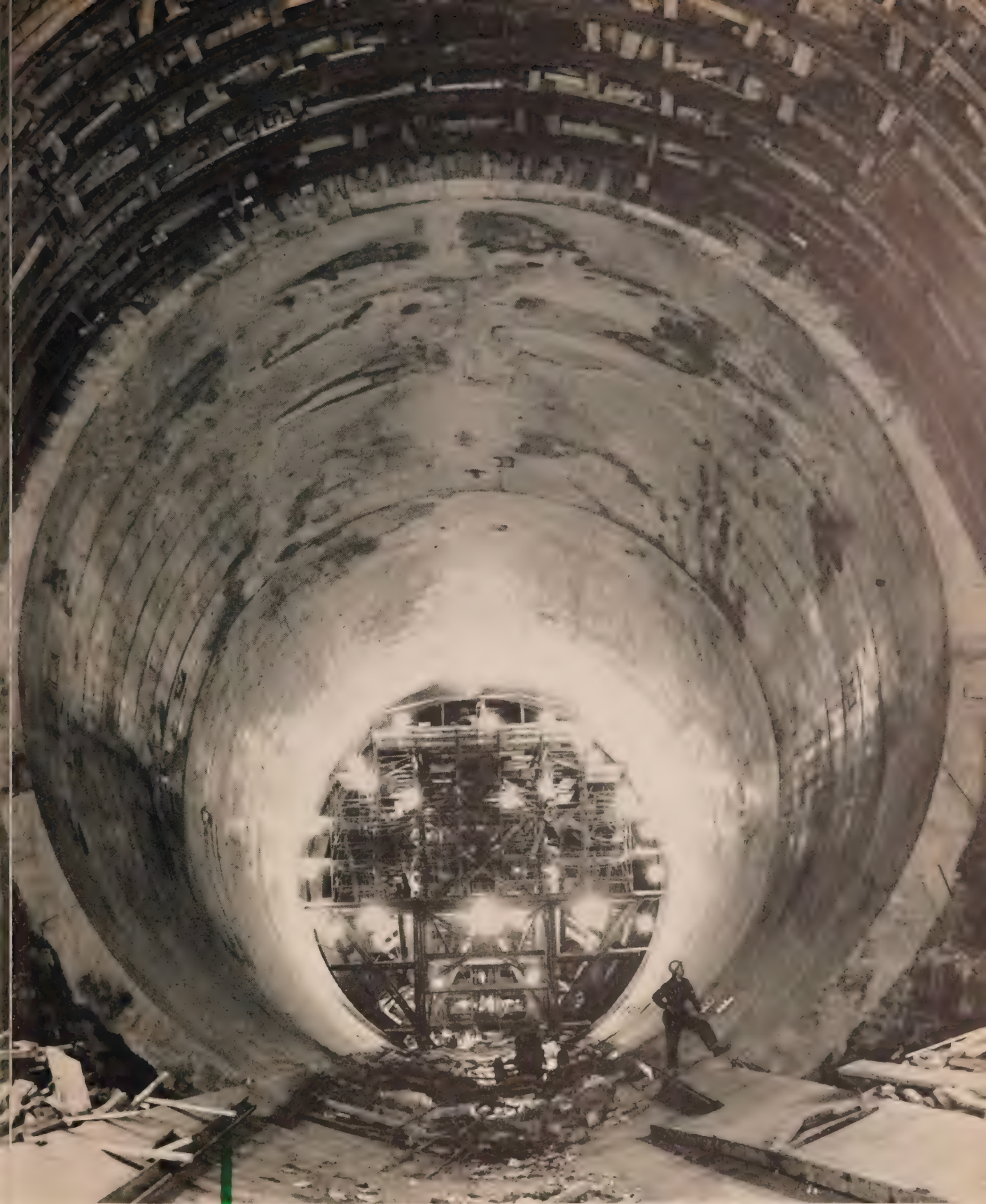
It is estimated that during the long period of changeover in Toronto, a total of approximately 35,000 domestic customers owning 60-cycle equipment will

move into 25-cycle sections of the city still to be done, coming either from city areas already changed over, or from outside 60-cycle points. To save these customers from having to alter their equipment back from 60 to 25 cycles, the Toronto Hydro is now building duplicate 60-cycle lines covering the entire city, so that 60-cycle service can readily be provided in such situations.

According to H. J. MacTavish, General Manager of Toronto Hydro, the local system now has this duplicate network about 20 percent completed, and should have it finished by about the end of 1954. The duplicate system is, of course, intended only to take care of 60 to 25 cycle moves, and it will save the estimated 35,000 customers considerable expense, since Ontario Hydro is not authorized to change over equipment from 60 to 25 cycles.

Belief that there will be such a high proportion of 60 to 25-cycle moves in the city, springs largely from the fact that Toronto is fast becoming a "25-cycle island" surrounded by heavily expanded 60-cycle residential areas. Only York Township, Weston and Forest Hill are as yet on 25 cycles outside the city. "Operation Changeover" has been carried out to the east in Scarborough and East York Townships, to the west in Etobicoke and Toronto Townships and along the lakeshore from Swansea to Burlington, and on the north in most of North York and up to Sutton on Lake Simcoe. Movement back and forth between these areas and the city is expected to be heavy.





A NOTABLE FEATURE of Hydro's Sir Adam Beck-Niagara No. 2 project is the excavation of twin  $5\frac{1}{2}$ -mile tunnels—two of the largest of their type in the world—beneath the City of Niagara Falls. Photo above shows part of the first tunnel where a section of concrete lining was completed recently. The subterranean passages, with a rough diameter of 51 feet each, will be lined with concrete, three feet thick, reducing their diameter to 45 feet. When completed, the tunnels will convey a total of 15,000,000 gallons of water per minute from the two intakes above Niagara Falls to a  $2\frac{1}{4}$ -mile open canal and thence to the forebay of the new generating station, situated some six miles below the famous cataracts.





ONE of the two completely-automatic concrete mixing plants in operation at Hydro's Sir Adam Beck-Niagara G.S. No. 2 project. The Commission's Construction Division is handling the manufacture of all concrete for the development which will use approximately 1,700,000 cubic yards or 3,500,000 tons in construction of all facilities. The mixing plant pictured here was used for pouring of concrete at the Shipshaw development of the Aluminum Company of Canada during World War II as well as most of the concrete manufactured for Ontario Hydro's 509,000-horsepower Des Joachims project on the Ottawa River which was placed in initial service in 1950. Plant has capacity of 360 tons per hour.



ONTARIO HYDRO

*News*

CORONATION ISSUE — MAY, 1953 — VOLUME 40 — NO. 5





# ONTARIO HYDRO News

MAY, 1953,

Vol. 40, Number 5

Published by

THE HYDRO-ELECTRIC POWER COMMISSION  
OF ONTARIO  
620 UNIVERSITY AVENUE, TORONTO



## POWER—THE KEY TO EXPANSION

IN this issue we chronicle the opening of a vast new industrial enterprise as Ford of Canada's 32½-acre assembly plant at Oakville, west of Toronto, goes into production. This new unit in Canada's growing manufacturing potential is typical of the tremendous strides which the country at large is taking in maintaining and strengthening its position as one of the great nations of the earth.

So significant indeed is Canada's progress, that many prominent U.S. publications, with impressive circulation records, have devoted several columns to glowing descriptions of the almost breath-taking changes within our farflung borders.

Latest American periodical to record its impressions of present-day Canada for posterity is the *Saturday Evening Post*. In a series of three articles, one of the Post's writers, Darrell Berrigan, has focussed attention on the Canadian scene, showing this vibrant nation moving forward through one of the most significant periods of its history.

At one point in the series, Mr. Berrigan observes that in Ontario alone, "where over 50 percent of Canadian industry is located, 2,162 new manufacturing establishments have been built since 1945, giving that booming province a total of 13,500 factories of all kinds."

Why is Ontario the very fulcrum of Canadian industry?

Mr. Berrigan answered that question in his first article of the series when he said: "Canada's great rivers and streams, in the final analysis, provide the most permanent supply of fuel for industries that can use it. Wherever hydro-electric power is developed great cities seem to spring out of the solid rock and industries surround great dams like bees around a lump of sugar. The concentration of industry in Southern Ontario and Quebec is the result of the hydro-electric power available in the area."

This statement is fully borne out by statistics cited by Hydro Chairman Robert H. Saunders when he urged immediate approval of the St. Lawrence Seaway and Power Project during a recent address in Washington.

In his remarks, Mr. Saunders said that industrial expansion in Ontario has been made possible by the fact that "in 1939 the people of Ontario consumed 8,426,240,000 kilowatthours of primary energy—equal to the labor of 37,000,000 working men—while in 1952, Ontario citizens used 21,048,921,000 kilowatthours—equal to a labor force of 94,000,000 men working eight hours per day for 300 days per year."

Little wonder then that Ontario Hydro is still pleading for the St. Lawrence development after 30 years of seemingly fruitless effort, and will continue to press for it until it becomes a reality.

It is the key that will open the door to still greater industrial expansion within the next decade.



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### CONTENTS

	Page
On The Line .....	2
And the Genie Appeared .....	6
Accent on the International .....	10
A Queen is Crowned .....	12
The Seven Queens .....	16
New Unit .....	19
Open House .....	20
Foto News .....	24
Along Hydro Lines .....	26
Pressing Matter .....	28
Hydro Home Forum .....	29

### COVER PHOTOS

IN this issue we proudly salute Her Gracious Majesty, Queen Elizabeth II whose Coronation will take place in Westminster Abbey on June 2. As this edition was being prepared for publication, nature sprang to life in a glorious burgeoning of spring flowers so graphically depicted on this month's back cover by a member of the Commission's photographic staff.

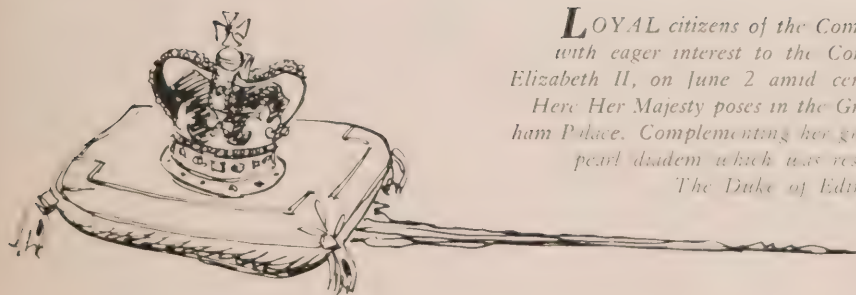
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Photo by Baron

**L**OYAL citizens of the Commonwealth are looking forward with eager interest to the Coronation of their young Queen, Elizabeth II, on June 2 amid centuries-old pomp and splendor. Here Her Majesty poses in the Green Drawing Room at Buckingham Palace. Complementing her graceful gown is the diamond and pearl diadem which was reset for the late Queen Victoria. The Duke of Edinburgh is wearing the uniform of an Admiral of the Fleet.





# LARGE NEW OAKVILLE PLANT OF FORD MOTOR COMPANY STARTS PRODUCTION ON THE LINE

by H. B. Wood

**T**HE first spanking model from Ford of Canada's new multi-million dollar assembly plant at Oakville rolled off the assembly line this month, approximately a year after the first steel for the giant building was erected.

This 32½-acre plant with 1.4 million square feet of floor space, is regarded as the largest industrial building under one roof in Canada. By comparison, the third-of-a-mile long plant is 14 times as large as Maple Leaf Gardens in Toronto—seating capacity, 12,586—or four times as large as Maple Leaf Stadium on the Queen City's waterfront.

Ford purchased the 420-acre tract lying generally south-east of the 4-lane Queen Elizabeth Highway in June, 1951. Soon afterward, bulldozers began the preliminary work of levelling and grading the former farmland which sold for a reported top price of \$1,000 per acre.

Ford's decision to transfer their assembly division to Oakville from Windsor was simply a question of moving closer by some 200 miles to the bulk market for motor vehicles in Canada. According to Rhys M. Sale, President, Ford Motor

Company of Canada, one out of every five vehicles produced by the new plant will reach customers within a 25-mile radius.

Naturally enough, opening of this new plant will have a dramatic effect on this largely suburban neighborhood within the next few years.

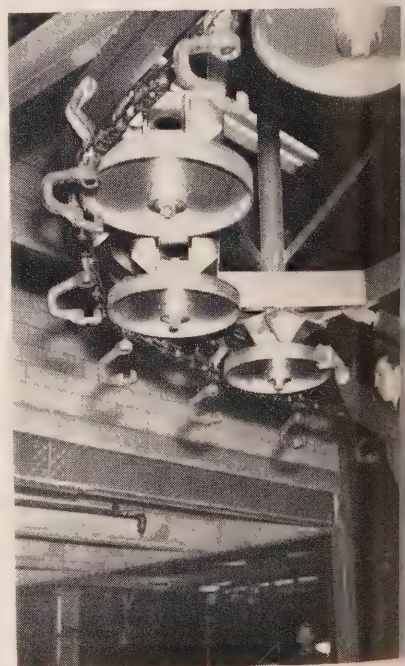
For example, the payroll of the new plant will include several hundred men as a start. The number of employees will build up gradually until it reaches close to the 4,000 mark, including salaried employees, which will be its normal complement.

## Many Seek Jobs

When the company opened an employment office in Oakville recently, personnel officers were literally "swamped" by men seeking "jobs." By the end of the first week some 1,600 applicants had been interviewed. Within less than a month, approximately 4,000 had their names on the Ford files.

Analysing the applications, it was found that the great bulk of available manpower

*(Continued on page 4)*







VIEW of the 32½-acre Ford plant at Oakville where production got underway this year. Regarded as the largest industrial building under one roof in Canada, the one-storey building has 1.4 million sq. ft. of floor space.

MAN adjusts one of the large wheels that move thousands of feet of electrically-operated overhead conveyors through an intricate system of assembly points. Conveyors carry cars through such operations as pre-paint, sound-proofing, painting and baking.

HYDRO'S Oakville Transformer Station steps down power to 27,600 volts and carries it over two-circuit line to plant substation.





(Continued from page 2)

was located in Toronto and Hamilton, not in the immediate surrounding area, and that hundreds of men were prepared to commute daily between the plant and their homes 20 to 30 miles away.

This greatly reduces the possibility of any undesirable mushroom growth of temporary, unattractive types of homes.

With about 90 percent of the employees taken on up to the end of 1953 living in towns and cities outside the area, Ford officials believe that the move to find homes within a 10-mile radius will come later when the new men get settled into their jobs and acquire a feeling of permanency.

Opening of this important new industrial unit, will also have a vital effect on the Commission's power demands.

When Ford engineers drafted plans for the new building, they designated On-

tario Hydro as the power supplier. At the Windsor plant, electric power is produced by company steam plants.

#### Large Power Consumer

During the ensuing discussions between Ontario Hydro and Ford officials, the company stressed that, because of the nature of their production schedule, they would need an ample supply of dependable power. It would be in the order of from 5,000 to 10,000 kilowatts, with every likelihood of this increasing to 20,000 kw.

Power to move Ford's assembly lines will be supplied from the nearby 115,000-volt line running from A. W. Manby T. S. at Islington, near Toronto, to Burlington T. S. near Hamilton. In case of line failure on one end, power can be despatched from the opposite side almost instantly through automatic switching.

#### New Oakville T.S.

The Oakville T. S., to be completed in June, will step down the transmission voltage to 27,600 volts and deliver it, by a two-circuit line, to Ford's substation. Six package stations around the plant will further step down the voltage from 13,200 volts to the plant's utilization voltage of 440 volts.

On April 1, the Commission commenced supplying 5,000 kilowatts to the new plant to handle the tooling-up operations. Once full-scale production gets underway, this load will gradually increase up to 10,000 kw.

Here's how the power needs of the new plant break down.

General lighting alone will involve the use of more than 7,100 two-lamp fluorescent luminaires, each eight feet long. That's twice as long as usual fixtures seen in offices and stores. In addition, there will be a large amount of mercury arc lighting in the high-roofed crane bay



FORD'S attractive, cottage-type pumping station on Oakville's beautiful waterfront, houses three electrically-driven pumps, each with a capacity of 2,000 gallons per minute, which supply many "service water" needs of assembly plant.

RUSSELL SMITH, Ford plant protection officer, examines main control panel in main substation near the assembly building. Two large transformers step down power supplied through Hydro's Oakville T.S. to 13,200 volts. Transformers located at various points step down power to 440 volts, plant's standard voltage.





Each machine and power tool is operated by its own individual electric motor, eliminating any belts or drive shafts. Even most hand tools are powered either electrically or pneumatically. Production of compressed air requires three, 375-horsepower motors.

### Many Power Uses

Several miles of overhead and floor conveyors and two huge travelling cranes, as well as hundreds of smaller cranes — all electrically-powered — will transport bodies along the assembly route. A substantial amount of electric power will be needed for spot welding, vacuum cleaning, forced-air ventilation, and a multitude of pumps for a wide variety of purposes.

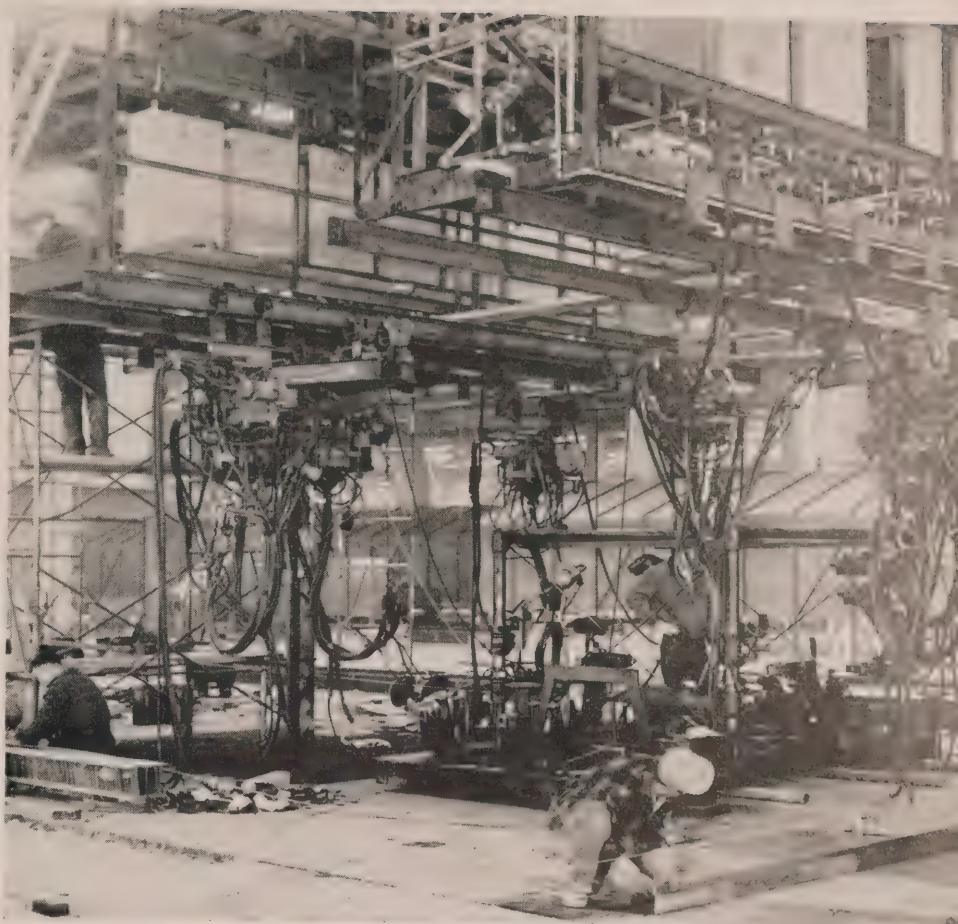
Electric pumps located in Ford's pumping station on the lakeshore, must lift three million gallons of lake water daily to meet the plant's requirements for unfiltered water. Water brought from the lake is referred to as "service water." It is used for production and sanitation, and also as steam for heating and processing. Service water is screened as it comes in from the lake, pumped to a million gallon reservoir near the company's boiler house, allowed to settle and then pumped into the service mains. It will be purified before it is dumped back into the lake. The plant's purified water supply will come from the municipality.

To eliminate danger from lightning which is increased by the extremely shallow layer of soil over bedrock, every metal part of the building is grounded to a ring cable, lying well outside the area of the buildings.

To eliminate danger from lightning third of the wall areas devoted to windows, while the upper structure and the boiler house have insulated aluminum panelling. While top capacity of the plant has not been set yet, company officials point out that production at the 13-acre Windsor plant has exceeded 700 units per day.

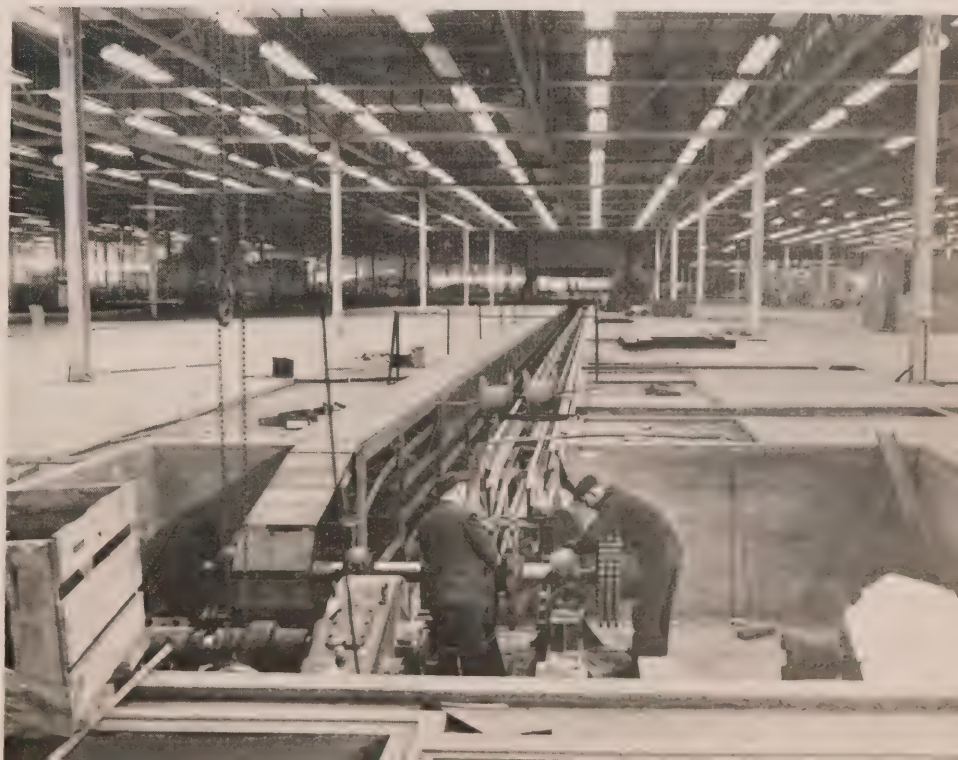
Ford of Canada has come a long way down the highways of Canada since it went into production in Walkerville in 1904 with 17 employees, and an annual wage and salaries payroll of \$12,000. Today it has over 13,000 employees with wages and salaries in 1952 totalling over \$52,000,000. Vehicle production, last year, set an all-time high of 132,190 units, over 13,000 above the 1951 figure.

In the 49 years Ford has been in business in Canada, some 2.6 million passenger cars and trucks have been produced—well up in the production records of the Canadian automotive industry.



▲ **SETTING UP** body bucks — large steel frameworks in which body panels are clamped and welded together — first pieces of equipment moved into new plant from Ford of Canada's assembly plant at Windsor. Electric welding equipment used is suspended from overhead rails.

▼ **HEAVY-DUTY** electric motor being installed here, powers the final assembly line where cars receive finishing touches before driving out as complete units. Overhead lighting is supplied by 7,100 fluorescent lighting fixtures, each eight feet in length. This is double usual size.





POISED over a huge pile of scrap iron and steel is the mobile magnet crane used to load trucks and railway cars.

# and the Genie appeared

**Salvage and reclamation program under the supervision of its Surplus Equipment and Materials Department has saved Ontario Hydro an estimated \$17,000,000**



By W. B. PRENTICE

LIKE Aladdin who, in the days of old Baghdad, rubbed a magic lamp and the Genie appeared, Ontario Hydro has a special department which, quietly and without fanfare, has been accomplishing a few miracles of its own over the years.

Known as the Surplus Equipment and Materials Department, it has saved Hydro an estimated \$17,000,000 since its inception before World War II—nearly enough, for example, to pay the cost of building the big 63,000-horsepower George W. Rayner Generating Station in Northern Ontario, one of 14 new power sources undertaken by Hydro since 1945 in its tremendous expansion program. Signifi-

cantly, nearly half this saving has been achieved since 1945—all the more important because it has occurred during a period of soaring costs for new materials.

The main function of the Surplus Equipment and Materials Department is to restore to Hydro service as much equipment as possible, thereby effecting economies in the purchase of new materials.

The Commission's salvage operations are divided into two main categories: (a) reclaiming equipment which can be restored to Hydro service, and (b) salvaging materials no longer usable by Hydro and offering them for sale either



"as is" or in the form of scrap. The gross dollar value of the combined operation, during 1952 alone, amounted to \$3,310,565. The efficiency of the program is indicated by the fact that 47.2 percent of the gross value (or \$1,559,504) of this material was returned to Commission use.

Through the Surplus Equipment Department, Hydro goes all over the world in search of markets for 25-cycle motors taken out of service as the frequency standardization program moves forward. Markets are also found for construction equipment which no longer meets the rugged demands of major construction jobs; for copper, steel, iron, lead and zinc and other valuable metals culled from the odds and ends of scrap that follow building activity.

**Province-Wide Operations**

At Hydro's A. W. Manby Service Centre in Islington, just outside Toronto, a 135-man staff headed by R. G. Wykes, handles the immense task of processing salvageable materials from Hydro's province-wide operations.

Where does Hydro's scrap come from? It comes from the power sites of the Commission's giant generating stations located throughout the province; from

*(Continued on page 8)*

**STRUCTURAL STEEL** taken out of service is piled neatly on these racks outside one of the Depot buildings ready for use again. Some 5,200 tons of steel were salvaged in 1952.



CONSULTANT in Hydro's Surplus Equipment and Materials Dept. is A. T. Clark who has had 30 years' experience in reclamation work.



SUCCEEDING Mr. Clark as Surplus Materials Engineer is R. G. "Bob" Wykes (centre) who heads 135-man staff of the S. E. and M. Dept.





(Continued from previous page)

thousands of different pieces of equipment, large and small, worn by time and use. In fact, it comes from all the farflung points where Hydro operates. For example, at the Otto Holden Generating Station site on the Ottawa River, tons of steel from 37 miles of railway line were salvaged from the relocation of a large section of Canadian Pacific Railway tracks. A copper telegraph line running beside this stretch of railway was also salvaged and sold for \$25,000 in 1950. Lumber and metal left over from constructing this 273,000-horsepower development were carefully collected and offered to recognized scrap dealers. Bunk houses for the workers were disposed of to established boys' camps in Ontario. Every possible use of material was investigated by experienced reclamation men.

Another instance was two Hamilton transformer stations which were no longer serviceable. One station was carefully taken apart and the items were sold individually; the other was turned over to scrap dealers at a set fee.

Similarly, during 1951 and 1952, Hydro was able to obtain \$114,000 from the sale of bulldozers that had come to the end of the trail as big-time construction-

job machines. They were sold to contractors whose projects were not so demanding, and to distributors for rebuilding and then resale.

Among the many other items that have been sold by the Surplus Equipment and Materials Department when they were no longer required on construction jobs are: six railway bridges; a 200-foot highway bridge from the Otto Holden project; double-bunk beds and walk-in refrigerators from northern camp sites. Anything non-ferrous is either sent to Toronto or disposed of at the site.

#### Methods Used in Disposal

The business of making much out of little, and doing it with a minimum of labor, time and expense, is a fascinating and absorbing occupation for engineers concerned with surplus materials.

They use sets of figures plotted on graphs to arrive at comparative costs of two or three different methods of performing certain operations. Figures themselves come from operation time-studies, from estimates of the volume of work to be done and from knowledge of market prices and industrial requirements for various materials.

It was in this way, for instance, that

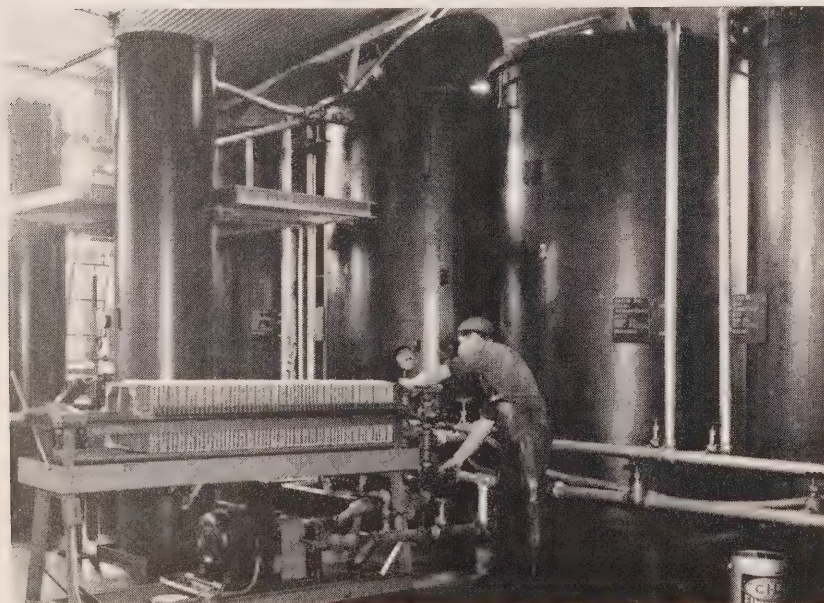
the idea of separating copper wire from iron and steel portions of obsolete electric motors was investigated. Mixed ferrous and copper scrap brings a good price from steel and copper companies, but when these materials are separated, prices run much higher.

For Hydro's S.E. & M. Department, the question was: how much would it cost to separate two kinds of scrap metal, and would the higher selling price justify the extra operations required to separate it?

Careful checks were made. Pneumatic pullers and a well-planned assembly line helped the men separate the metals in record time. Time required, cost of floor space, heat and supervision were worked out mathematically, and the resulting graph showed a definite profit could be made out of separating scrap before it left the shop.

#### Many Savings Made

While scrapping can be an economical method of disposal, Hydro's engineers prefer to rehabilitate equipment wherever possible. About one-half of the value of surplus equipment and material is reclaimed to meet high-test requirements for Commission use. Lists of salvaged



APPROXIMATELY 30,000 gallons of distribution transformer oil a year are reclaimed for re-use by Hydro. New oil costs about 45 cents a gallon while per gallon cost of reclaiming is estimated at 15 cents, representing an annual saving of about \$9,000 in a 12-month period. Photo shows the filter press with the purification and storage tanks in the background.



RECLAMATION process involves removing impurities and excess water from oil pumped out of the transformers at the A. W. Manby Service Centre, near Islington.



and rehabilitated equipment are circulated among departments likely to need it and S. E. & M. tries to place it where it will do the best job. When no further use can be found for a piece of equipment within the Commission, it may be sold to outside business men.

### Standardization Program

One of the prime contributors in the drive for surplus materials is the frequency standardization program, the mammoth undertaking which was launched in 1949 to change over to 60-cycle operation some 904,700 customers in the Southern Ontario "25-cycle island." By December 31, 1952, 1,275,206 separate items of frequency-sensitive electrical equipment belonging to 242,615 domestic customers, 21,813 commercial customers and 3,860 power customers were "cut over" to 60 cycles.

From this immense job have come some 572,470 frequency-sensitive, single-phase motors (washing machines constitute over half) and 54,468 polyphase motors up until December, 1952. The remaining frequency-sensitive electrical equipment includes fluorescent lamp ballasts, phonograph motors, neon-sign transformers, oil burner ignition transformer, oil burner controls and various other transformers. Many are rewound in Hydro's service shop and placed back in service. The policy of rewinding 25-cycle motors to 60-cycle frequency permitted savings of \$628,009 up to December 31, 1952.

Some salvaged 25-cycle motors not economical to rewind are sold to markets desiring this lower cycle. When Hydro found a diminishing local use for 25-cycle motors obtained through frequency standardization, it then looked to other parts of the world—through trade commissioners and government agencies—for possible untapped markets. Far-off lands, such as Mysore, a state in Southern India where 25-cycle power is still used, were investigated. Inquiries ranged also to countries like France, Italy and Spain where isolated areas continue to operate at this frequency.

Sweden was quizzed on the problem too, but Sweden, like Ontario, is now undergoing an "operation change-over." Two substantial markets, however, were uncovered in the United States. These proved to be certain isolated coal mines and factories. Further south, a few motors were also sold in the Panama Canal Zone. Right here in Canada a market was uncovered, although small, in Northern Quebec.



IN the new fire-grading section, a shipment of truck tires is unloaded after being graded by an expert Commission appraiser who determines whether tires are suitable for re-treading or salvage. These tires are being placed in temporary storage where they remain until sold.

### War Work Outstanding

During the early years of World War II, urgent requests were sent out to the province-wide Hydro system in an effort to obtain desperately-needed metal and reclaimable equipment to help maintain the flow of electricity to humming war industries. An instance where this thrifty habit paid off was in the construction of the giant Polymer Steam Station which was being hurried to completion to provide power for Sarnia industries.

Ontario Hydro's General Manager and Chief Engineer, Dr. Richard L. Hearn, well remembers the service the Surplus Equipment and Materials Department performed at that time. Understandable, for Dr. Hearn was the Chief Engineer for Polymer in 1942-43. Through salvaged equipment and parts—steam turbines, cables, etcetera—the Polymer plant was placed in service despite the desperate shortages of materials, six months ahead of schedule.

This experience, coming early in the war, proved to be only the forerunner of a long succession of wartime emergency calls not only from within Hydro, but reaching right into the office of the Department of National Defence at Ottawa.

### Greater Emphasis During 50's

Greater emphasis than at any time in Commission history has been placed not only on salvage, but on reclamation since the end of World War II. Drawing

on their wartime experience, the efficient staff of the Surplus Equipment and Materials Department returned to service more than \$8 million worth of metal and equipment between 1946-1952.

During this period, Hydro salvaged a total of 13,840 tons of steel, 2,730 tons of copper and 786 tons of aluminum. Last year, for example, 10,326 tons of metal were reclaimed for other uses.

In detail, the salvage program in 1952 netted: 5,200 tons of steel; 2,064 tons of cast iron; 1,343 tons of copper-bearing material; 1,180 tons of copper; 286 tons of aluminum; 84 tons of lead and lead cable; 59 tons of brass and bronze; and 110 tons of miscellaneous scrap metal—a significant contribution to the Commission's unceasing program of expansion!

### Improvements Planned At Richmond Hill

Expenditure of \$60,000 has been approved for the Village of Richmond Hill to effect extensions and improvements to the electrical distribution system in the Village this year, Reeve Russell Lynnett announced.

This expenditure also includes the purchase of Ontario Hydro rural lines and equipment in the area to be annexed by Richmond Hill. The facilities, Mr. Lynnett stated, will be financed from the issue of bonds.





ONE of the first stops during visit of Crown Prince Akihito was at the Canadian Horseshoe Falls which royal visitor viewed through the large pair of binoculars.

# Accent on the International

**KING OF CAMBODIA AND CROWN PRINCE OF JAPAN VISIT NIAGARA FALLS AND TOUR ONTARIO HYDRO'S SIR ADAM BECK NO. 2 PROJECT**

**E**MPHASIZING the status of Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2 project in the international view, two royal visitors from the Orient inspected the great development during April.

Enroute from France to his homeland, His Majesty, Norodom Sihanouk, King

of Cambodia, accompanied by his Ambassador to the United States, Nong Kimny, visited Niagara Falls recently, accompanied by Ontario Prime Minister Leslie M. Frost and Hydro Chairman Robert H. Saunders.

During his visit to the Cataract City, the 31-year-old bachelor King was escort-

ed on a tour of the 1,200,000-horsepower Hydro development, including a visit to one of the project's twin 5½-mile tunnels where he displayed keen interest in the mammoth job. As this was his initial visit to North America, the young King of Cambodia—part of the French Indo-China protectorate—expressed his

**AT the reception for 19-year-old Prince, His Imperial Highness chatted with Louis R. Perini, President, B. Perini and Sons Inc. (joint**

**contractors for sections of tunnel at Hydro's Niagara project), Chairman Saunders, and Mayor Ernest Hawkins, Niagara Falls.**





ESCORTED by Premier Leslie Frost, left, and Chairman Saunders, the King of Cambodia (between Mr. Frost and Mr. Saunders) talks with Jesse Glaeser, Chief Engineer and Project Manager for Perini-Walsh and Associates during inspection of one of the Hydro tunnels.



excitement in getting his first glimpse of the twin Niagara cataracts. Second distinguished guest, who arrived two days later, was His Imperial Highness, Crown Prince Akihito, heir to the Japanese throne.

#### Admiration Tour

Enroute to the Coronation of Queen Elizabeth II with a party of Japanese diplomats and newsmen, the 19-year old son of Emperor Hirohito stopped in Niagara Falls as part of an "Admiration Tour" across Canada. Welcomed at the station by Mayor E.

M. Hawkins of Niagara Falls and Hydro Chairman Robert H. Saunders, the young Prince looked at the Canadian Horseshoe Falls through binoculars and listened intently as Mr. Saunders described the great power developments that have made the district famous. After luncheon, the official party started on a tour of the Sir Adam Beck No. 2 project, commencing at the intakes for the new development on the Upper Niagara River near Chippawa. The visitors also saw construction in progress at the 12-unit powerhouse six miles below Niagara Falls.

The visit of these royal personages forms another link in a long list of distinguished world figures who have visited Niagara Falls in the past few years, including Her Majesty, Queen Elizabeth II (then Princess Elizabeth), and the Duke of Edinburgh; Pandit Nehru, Prime Minister of India; the late Liaquat Ali Khan, Prime Minister of Pakistan; Rt. Hon. Vincent H. Massey, Governor-General of Canada, as well as some 400 delegates to the International Red Cross Convention held in Toronto last summer.

ING of one of the world's newest independent nations, the young monarch was accompanied on this goodwill visit by his Ambassador

to the United States, Nong Kimmy. Here party discusses tunnel construction at Niagara with Assistant Field Project Engineer, Wm. Hogg.







Great crowds will throng the streets of London on June 2 to acclaim Queen Elizabeth as she rides to and from her Coronation.



The Orb with the surmounting Cross symbolizes the dominance of Christianity throughout the world.



IN THE GREAT ABBEY OF WESTMINSTER A YOUNG SOVEREIGN WILL DEDICATE HER LIFE TO THE SERVICE OF THE BRITISH COMMONWEALTH

*She had all the royal makings of queen;  
As holy oil, Edward Confessor's crown,  
The rod, and bird of peace, and  
all such emblems  
Laid nobly on her.*

NEARLY 400 years have passed since England's William Shakespeare so expressively epitomised the significance of the Throne in the British way of life.

But, in spite of the changing scheme of things, and of the unrelenting march of progress which has transformed the old order to the new almost beyond comparable recognition, the Throne, and its place in our life and history, remains unchanged.

On June 2 this year, in the great Abbey of Westminster, another link with the distant past will be forged.

On that day, in every town and hamlet,

every highway and byway throughout Great Britain and the Commonwealth, the hearts of the people will go out to a young girl—called by destiny to occupy the first place in the land—as she sits in the historic chair of King Edward awaiting her enthronement.

The occasion, the Coronation of Her Gracious Majesty Queen Elizabeth II, will be one of a lifetime. To witness even part of the majestic pageantry that will attend the crowning will be to inherit an imperishable memory; an occasion to be retold in later years to children's children who, gathering around a fire, will listen with veneration to the tales of long ago when the seventh Queen of England since the days of William the Conqueror rode through the streets of London to her crowning.

At 10.30 on the morning of this historic day, the Queen, robed majestically in an exquisitely embroidered gown,



will step into the Royal Coach of State which will await her within the precincts of Buckingham Palace.

Two Centuries Old

Drawn by eight Windsor greys, the gilded 18-carat gold coach, almost two centuries old and weighing four tons, will then move slowly across the Palace courtyard, through the massive iron gates, and out into the Mall where cheering crowds of loyal subjects will be waiting to acclaim their young Queen.

Thus, down the Mall, across Trafalgar Square, along Northumberland Avenue, the Victoria Embankment, Bridge Street and Parliament Square the procession will pass through the gaily-garlanded streets.

And as the Queen rides by, gracious and smiling, the crowds will roar their fealty, shout their answer to the Queen's broadcast plea: "Pray for me on that day . . ." And with one cry, the voices of these countless thousands of people—visitors from overseas, schoolchildren, men and women of all ranks—will go up in loyal acclaim.

Already, other processions nearly two miles long, will have gone before—each an integral part of the whole glistening cavalcade that will accompany the Queen to her Coronation.

Coronation Procession

But no part of this long winding human ribbon of color and splendour can equal the magnificent and heart-touching sight of the Queen's procession.

Led by a mounted officer, and followed in turn by detachments of the Household Cavalry in scarlet tunics and gleaming cuirasses; mounted Regular and Territorial Cavalry; field marshals and other high-ranking officers; contingents from the Dominions and Colonies; Yeomen of the Guard, and the Queen's Bargemaster and Watermen in centuries-old costumes, the procession will move slowly along. Then will pass the superb massed bands of the Household Cavalry, the Sovereign's escort, carriages of the Royal Household and finally the postillioned State Coach carrying the Queen and the Duke of Edinburgh, seated on her left.

At the west door of the Abbey, in the specially-built Annexe, the Duke of Norfolk, the Earl Marshal, with the Archbishop of Canterbury and other archbishops and bishops in copes of gold, green and red, will receive the Queen.

Within the Abbey, packed to capacity, a vast congregation of some 7,000 people—peers in crimson and ermine, peeresses in their velvet robes, members of the Royal Family, statesmen, men of fame—

will wait expectantly for their Queen.

Entering by the West Door of the Abbey, as the trumpets sound a fanfare, the Queen, escorted by the Great Officers of State bearing the Royal Regalia, will proceed through the Nave and the Choir to her Chair of Estate, on the south side of the area in which the crowning takes place, near the High Altar, while the choristers under the direction of Dr. William McKie, organist of the Abbey, sing that ancient anthem dating from Stuart times:

"I was glad when they said unto me  
We will go into the House of the Lord."

As the Queen enters the choir, the Queen's Scholars of Westminster School will exercise their traditional right, and from the high triforium above the nave, will acclaim Her Majesty with the Latin cry "Vivat! Vivat!"

Before taking her seat the Queen will kneel for a few moments in silent prayer, an act of private devotion, as she presents her "Humble Adoration" before God, for the Coronation is essentially a religious service—one of dedication of the Queen to the service of her people.

Ceremony Begins

From that moment, the actual Coronation ceremony will begin, commencing with the Recognition.

The Archbishop of Canterbury, the Lord Chancellor, the Lord Great Chamberlain, the Lord High Constable and the Earl Marshal led by the Garter King

(Continued on page 14)



Supreme act of the Coronation is the placing of St. Edward's Crown on the Sovereign's head.

Historic Westminster Abbey where Coronation will take place. Queen Elizabeth II will be the 41st British Sovereign crowned in the Abbey.





Probably the most ancient object in the whole Coronation Regalia, the Ampulla holds the Holy Oil which is poured through the beak into the Anointing Spoon. The Anointing Spoon is of heavily-gilded silver with a floreate device on the bowl and four panels on the handle.



One of the chief figures of the Coronation is the Archbishop of Canterbury who is accorded the supreme honor of placing the Crown on the Queen's head.



(Continued from previous page)

of Arms, will go to each side of the Abbey where the Primate will address the people, as the Queen, by her chair, turns and faces them in the East, South, West and North. Thus from each side of the theatre (a platform specially erected for the occasion) the Queen will be proclaimed.

"Sirs, I here present unto you Queen Elizabeth, the undoubted Queen of the Realm; wherefore, all you who are come this day to do your homage, are you willing to do the same?" And the people will respond with loud and repeated cry: "God Save Queen Elizabeth." As their voices die away the State trumpeters will sound a fanfare. The Recognition symbolizes the people's right of election, and their acceptance of the Queen as the people's choice.

Meanwhile the various objects of the regalia will have been presented at the High Altar. The litany and the opening passages of the Coronation service will be recited followed by the sermon.

### Takes Oath

Then comes the Coronation Oath in which the Queen will solemnly promise to "govern her peoples according to the laws and constitutions of the land, and to maintain the laws of God." The Queen then signs the Oath, making a permanent compact between the Sovereign and her people. The Oath is one of the oldest features of the Coronation, tracing its origin back to ancient times.

Attended by the Lord Great Chamberlain, the Sword of State being carried before him, the Queen will then go to the Altar and, laying her hand upon a Bible will make her vow as she kisses the Book: "The things which I have here before promised, I will perform and keep. So help me God."

After the Oath, the Holy Communion service begins, followed by the Anointing with Oil. For this part of the ceremony the Queen—her crimson robe removed—will be seated in the Chair of King Edward beneath which rests the Coronation Stone, stolen some two years ago from the Abbey and subsequently recovered in Scotland.

The Coronation Chair, though battered and worn, is one of the nation's most treasured relics. Edward I ordered it to be made to enclose the Stone of Scone (crowning seat of ancient Scottish Kings, which he captured from the Scots in 1297. Since then every Sovereign, except Edward V and Edward VIII has been crowned from this seat.

Four Knights of the Order of the Garter, summoned by the singing of the



hymn "Come Holy Ghost, our souls inspire," will bear a pall of cloth of gold supported by silver staves to the chair. Beneath this pall the Archbishop, using the Ampulla and Spoon—the oldest items in the Regalia—will anoint the Queen in the form of a cross.

Following the Anointing will come the Investiture—a feudal rite in both origin and significance. A white cambric garment, the Colobium Sindonis, and a loose coat of cloth of gold, the Supertunica, will be placed upon the Queen. St. George's Spurs will then be brought from the Altar by the Dean of Westminster and handed to the Lord Great Chamberlain, who, kneeling down, will touch the Queen's heels with them.

Then the peer who carries the Sword of State will deliver it to the Lord Chamberlain, and in exchange will receive the Jewelled Sword with which the Sovereign is usually girded. Since a Queen is to be crowned, it will probably only be handed to her. The Queen will return the sword to the Archbishop who will place it on the Altar. The peer will then offer one hundred shillings for the Jewelled Sword as a redemption fee and will receive it from the Dean, draw it from the scabbard, and carry it unsheathed before Her Majesty for the rest of the ceremony.

The Queen will then be invested with the Armill and Robe Royal or Imperial Pallium, a pall of cloth of gold. The Orb, symbol of the Sovereignty of Christianity over all the world, having been delivered to the Queen, the Ring of pure gold, will then be placed on the fourth finger of her right hand—the Archbishop exhorting her to receive it as an ensign of queenly dignity with which she is "wedded to the State."

#### Receives Sceptres

The Queen, having put on the glove presented by the representative of the Lord of the Manor of Worksop, will then receive from the Archbishop, the Sceptre with the Cross signifying Queenly Power and Justice, and the Sceptre with the Dove, symbolizing Equity and Mercy, which she will hold in her right and left hands respectively. With the presentation of the two sceptres this part of the ceremony will have ended, and, although the mystical significance of the investiture may now be lost, its historic interest based on ancient feudal customs still remains.

Now comes the all-important part of the Coronation—the actual placing of the Crown upon the Queen's head.

Sixteen years ago, the Queen, then Princess Elizabeth, watched this very act

during her father's coronation, from the Royal Box. Old enough then (she was eleven) to appreciate that one day she might well be occupying her father's place; now, with the passing of time, what must once have been a fleeting thought will become a reality, as she accepts this symbol of high responsibility.

And in the deep hush that betokens the silent prayers in the hearts of the assembled congregation, the Archbishop of Canterbury will take the Crown of St. Edward from the High Altar, raise it and lay it down again as he says: "O God, the Crown of the faithful; bless we beseech thee, and sanctify this thy servant, Elizabeth our Queen; and as Thou dost this day set a crown of pure gold upon her Head, so enrich her Royal Heart with Thine abundant grace, and crown her with all queenly virtues, through the King, eternal Jesus Christ our Lord."

#### The Crowning

The Dean of Westminster will hand the Crown to the Archbishop who then, "in the sight of all the people" will reverently place it upon the Queen's head. And as the Crown is slowly lowered, the silence will be broken with loud and repeated cries: "God Save the Queen."

Peers, peeresses and kings of arms will put on their coronets, the trumpets will sound again, and the great choir will sing the anthem: "Confortare — 'Be Strong'." Outside, the bells will peal forth, and the guns at the Tower will fire their salute.

So shall another page in the history of the long line of English sovereigns be written and the page be headed—Elizabeth II—Crowned Queen of Her Realm.

With the enthroning and homage the solemn yet joyous occasion will draw to its final stages.

#### Pay Homage

The Queen, leaving the Chair of St. Edward, will then be lifted into her seat in the Throne there to receive the homage of the archbishops and clergy, her lords spiritual, and the peers, her lords

(Continued on page 18)



IT was only 16 years ago that Queen Elizabeth, then Princess Elizabeth (circle), watched the Coronation of the late King George VI, from the Abbey's Royal Box.



St. Edward's Crown (The Crown of England), is worn only once during a Sovereign's life — at the moment of actual Coronation.





—Photo by Karsh

# THE SEVEN QUEENS

Her Gracious Majesty  
QUEEN ELIZABETH II

**SIR WINSTON CHURCHILL**, Prime Minister of Great Britain, once observed that some of the greatest periods in the country's history had unfolded under the sceptre of British Queens.

And so today, throughout the great Commonwealth, men's minds and hearts stir with anticipation as they look forward to the Coronation of Her Majesty, Queen Elizabeth II—the seventh Queen Regnant since the days of William the Conqueror.

The story of Queens Regnant goes back exactly 400 years to July 10, 1553, when an innocent, 16-year old girl, Lady Jane Grey, became Queen. Her reign was short and tragic. She held the crown for only nine days when a general uprising placed Mary Tudor on the throne.

Mary I, daughter of Henry VIII and Catherine of Aragon, became Queen at the age of 39. Deeply religious,

she married Philip of Spain who persuaded her to embark on a costly war with France. The loss of English-held territory was an embittering experience to Mary who made the famous remark: "When I die you will find Calais inscribed on my heart."

Elizabeth I came to the throne in a stormy period of history with England torn apart by religious controversy. But, it was during her reign that Philip of Spain sent his great Armada against England to meet ignominious defeat. With this threat removed, England entered upon a great period of exploration and foreign trade.

After the abdication of James II, Mary II acceded to the throne, ruling jointly with her husband, King William III of Orange. In 1702, Anne, second daughter of James II, became Queen, remaining as Sovereign until her death in 1714. During her reign, England won many military victories under the great

Duke of Marlborough, acquiring the important base at Gibraltar. Adding further lustre was the Union of England and Scotland, while trade and industry flourished.

In 1837 the longest reign in British history began, when Victoria, only child of the Duke of Kent, fourth son of George III came to the throne at the age of 18. Her marriage to her cousin, Prince Albert of Saxe-Coburg and Gotha, was frowned upon in certain circles, but, as Prince Consort, Albert gave wise counsel to the young Queen, who went into permanent mourning at his death. Victoria's reign witnessed astounding advances in science and industry, while the British Empire came to full flower. It was Queen Victoria who suggested the location and name of Canada's Capital City—Ottawa. Although the latter years of her life were shadowed by the Boer War, it can be truly said that her reign was the golden age of British history.





◀ LADY JANE GREY  
July 10, 1553-July 19, 1553

MARY I  
1553-1558 ▶



ELIZABETH I  
1558-1603



MARY II 1689-1694



ANNE 1702-1714

VICTORIA 1837-1901





## A QUEEN IS CROWNED

(Continued from page 15)

temporal, as they kneel before her to take their oath of allegiance. First of the lords spiritual to pay homage will be the Archbishop of Canterbury. Philip, Duke of Edinburgh, husband of Her Majesty, will lead the peers in this ceremony.

The homage ended, the drums will beat, the trumpets sound again and the people shout: "God Save Queen Elizabeth. Long live Queen Elizabeth. May the Queen live forever!"

As the shouts die away the Queen will proceed to the Altar steps and remove her Crown. There she will kneel and offer the Bread and Wine for the Communion. She will return to her stool beneath the Royal Box and kneel during prayers. Again the Queen will kneel at the Altar, and the Bread and Wine will be administered to her.

With the Communion the historic Coronation ceremony will end. The Queen, wearing her crown, will proceed into St. Edward's Chapel there to put off the Imperial Pallium and Crown and replace them with a robe of velvet and ermine and the Imperial State Crown.

### Return to Palace

Her hallowing ended, her promises made before God and the people, the high majesty of the crowning over, the Queen will then leave the sacred precincts soon to enter the State Coach with her husband and so pass through the cheering crowds as she drives back to Buckingham Palace.

Thus shall a young Queen be crowned. Thus shall the people receive her. And as she returns to her palace the prayers and thoughts of millions of her subjects shall go with her.

May this day mark the dawn of another golden Elizabethan era of prosperity and happiness!

### Dunnville Planning System Expansion

Electrical distribution system of Dunnville Public Utilities Commission will be extended and improved during 1953 it was announced recently by Chairman C. Thomas.

The program, estimated to cost \$14,549, including new office equipment, will be financed from available funds, Mr. Thomas stated.



ABOVE—Mayor E. M. Hawkins, Niagara Falls, welcomed delegates during luncheon. Head-table guests included, l. to r., E. E. Sparrow, Chairman, Workmen's Compensation Board; Mayor Hawkins, J. A. McVicker, Chairman, Niagara Falls Branch, C.M.A.; G. K. Sheils, CMG, President, C.M.A.; W. Ross Strike, Second Vice-Chairman, Ontario Hydro, and J. Ross Belton, new Chairman, Ont. Div., C.M.A. BELOW—During tour of Hydro's Sir Adam Beck—Niagara No. 2 project, delegates visited site of new intake structures for the massive development near Chippawa.

### TOUR NIAGARA PROJECT

SOME 260 delegates attending the 34th annual meeting of the Canadian Manufacturers' Association, Ontario Division, meeting in Niagara Falls on April 30, were taken on a conducted tour of Ontario Hydro's Sir Adam Beck-Niagara No. 2 project. Harold A. Short, retiring Chairman, said the tour gave the delegates "a better understanding of the significance of Hydro power in our economy, and brought home to us the realization that it is truly the lifeblood of our industry." Delegates were welcomed on behalf of Ontario Hydro by W. Ross Strike, Second Vice-Chairman. J. Ross Belton, Gutta Percha and Rubber, Limited, Toronto, was elected 1953-54 Chairman, while W. A. Osbourne, Babcock-Wilcox & Goldie-McCulloch, Galt was elected Vice-Chairman.







WITH ERECTION of building's all-welded structural steel frame finished, the latter phase of construction is now underway. Architect's perspective on the right indicates appearance when it is completed during 1954.

# New Unit



## Ontario Hydro Erecting Five-Storey Engineering Building in Toronto

REFLECTING the magnitude of its record-breaking program of expansion, underway since 1945, Ontario Hydro is engaged in the construction of a new five-storey Engineering Building.

The new structure is located on Murray Street, directly behind the Commission's Head Office at 620 University Avenue Toronto.

With the Commission rapidly expanding its operations, year after year, there has been a natural increase in the number of employees located in Toronto. The staff, in fact, throughout the province has more than doubled since 1946. This has necessitated the acquisition of additional office accommodation and other space at

widely-separated points throughout Toronto.

### Completed in 1954

Completion of the Engineering Building—scheduled for the summer of 1954—will permit consolidation of a substantial portion of the Toronto staff at one point, resulting in greater ease of communication between departments as well as significant savings in time and money.

The building will contain some 91,500 square feet of usable space and will connect with Hydro's three-storey Service Building which faces on Orde Street, half way between McCaul and Murray Sts. The foundation has been constructed by

Carter Construction Co., Ltd., and the all-welded structural steel frame by Dominion Bridge Co., Limited. The contract for the completion of the building has been let to The Foundation Company of Ontario Limited, and is now underway.

As a measure of co-operation with the Canadian Government, erection of the new structure was deferred, owing to the urgent requirements for steel in Canada's defence program. When supply conditions improved and restrictions affecting the use of steel for office buildings were lifted recently, construction of this new Head Office unit was started immediately.



# OPEN HOUSE

***Etobicoke Hydro-Electric Commission  
Officially Opens Modern Headquarters Building  
Designed to Meet Municipality's Rapid Expansion***



HANDSOME Etobicoke Township Hydro Commission headquarters has an impressive main entrance of Indiana limestone and black granite. Provision has been made in the design of the buff brick structure for the addition of a second storey.

PORTION of large, attentive audience attending the interesting ceremonies on April 22 which marked the official opening of the new public building.





**B**RIGHT lights in Etobicoke Township's modern Hydro building signalled "open house" for the commission's many customers and friends marking official opening of the new headquarters on April 22.

With provincial and municipal officials, O.M.E.A. and A.M.E.U. officers, as well as several representatives of neighbor Hydro commissions and Ontario Hydro present, the opening ceremonies reached a warmly-applauded climax as Hydro Chairman Robert H. Saunders cut the traditional ribbon. Dedication exercises were conducted by Rev. A. H. MacKenzie, President of the local ministerial association.

The handsome, one-storey structure embodies the fundamental thinking of the Etobicoke Commission: efficient service for its 20,650 customers; provision for future expansion, and the encouragement of the best employee relations.

As guest speaker, Chairman Saunders congratulated Etobicoke Chairman, Dr. V. S. Wilson, "on a job well done," and the members of the commission for their foresight in preparing "for a wonderful future."

#### Total Assets \$4½ Million

The Hydro Chairman also praised Etobicoke Hydro-Electric Commission, which, since its inception in 1918, has built up assets of nearly \$4½ million. Simultaneously, the commission has given low-cost power to its customers. Domestic customers served by Etobicoke paid 5.9 percent less for their electricity in 1952 than they did in 1945.

"It is truly a wonderful experience for me to go throughout Ontario visiting the different municipalities—including some 319 cost municipalities. They offer concrete evidence of the efficiency found in Hydro commissions and of the typical unselfish manner in which men and women are giving their time and experience to their community," the speaker stated.

Chairman Saunders reminded his audience of the necessary planning and de-

velopment of Hydro facilities which must, not only parallel, but precede and anticipate any large-scale provincial growth, particularly in modern building subdivisions.

"Today the average home requires at least 1-1/3 kilowatts of electricity, and when multiplied by say 27,000 or more dwellings—the approximate number of homes built in Ontario last year—you have a demand of about 40,000 kilowatts."

#### Engineers Praised

Hydro engineers were complimented by the speaker for their preparedness during this period of tremendous development, when no potential customer in any urban district of Ontario has had to wait "five minutes for power" when ready to use it.

"There has been an increase in our power resources since 1945 of 73 percent, or 1,897,000 horsepower, bringing the total to 4,495,100 horsepower—or just about one horsepower for every man, woman, and child in this province," said Mr. Saunders.

In spite of these tremendous increases in the Commission's resources and its continuing expansion program which will bring in an additional 1,312,500 horsepower by 1956—with an overall increase of 124 percent over 1945—it is anticipated there will be no reserve until December, 1954. At that time there should be a margin of from 10 to 15 percent, but there may be only approximately four percent reserve, the speaker said.

Looking into the future, Mr. Saunders stressed that Hydro was fighting for "the 'go-ahead' signal" on the St. Lawrence Power development so that Hydro customers would have adequate power in 1957.

"It is unfortunate, in fact it is a crying shame against our democratic way of life that development of this wonderful river with its average flow of 242,000 cubic ft. per second, and a drainage basin behind it of 303,000 sq. miles, is being held up because of selfish interests."

Mr. Saunders went on to reveal that a

*(Continued on next page)*



CLIMAX of the formal opening was the cutting of the symbolic ribbon by Chairman Robert H. Saunders. On the platform with him were, front row, l. to r., D. P. Cliff, Secretary-Treasurer, O.M.E.A.; Etobicoke Chairman, Dr. V. S. Wilson, Commissioner George Trowhill. Back row, Rev. A. H. MacKenzie, W. Elmer Brandon, M.P.P., York West; Norman A. Grandfield, Pres. of the A.M.E.U., and W. B. Lewis, Reeve, Etobicoke Twp., one of the speakers.





## YOUR HYDRO-ELECTRIC

BIRCH PLYWOOD has been used with tasteful effect for wall finishes and counters in the main business office of new headquarters.



ETOBICOKE CHAIRMAN, Dr. V. S. Wilson (centre), is congratulated by D. P. Cliff, Sec.-Treas., O.M.E.A. and N. A. Grandfield, A.M.E.U. President.

## YOUR HYDRO-ELECTRIC SYSTEM



JOHN TORRANCE, Engineer, explains operation of municipality's hydro-electric system to Mrs. John Irvine and Bobby, wife and son of Etobicoke Township Commission's Sec.-Treas.

*(Continued from previous page)*

saving of \$253,000 was being achieved at the Chat Falls Plant on the Ottawa River, by re-commissioning the damaged No. 2 unit at 60-cycles instead of the previous 25-cycles. He also reported that within two weeks of the disastrous fire, seven of the eight units were operating.

### Long-Term Planning

Chairman Dr. V. S. Wilson, spoke of the planning which had gone on during the past five years, and the necessary revisions to meet the tremendous expansion of the township.

"There is no question about the need for new accommodation. In terms of average power load, our consumption has increased approximately six-fold, from 5,335 kilowatts in 1943 to 33,000 kilowatts in 1953."

Continuing, Dr. Wilson stated that Etobicoke Township ranked 10th, including large cities and towns, in power consumed.

"We are serving an area of 38 square miles which by January 1 of next year, will increase by 20 square miles. This area at the present time is being served by the Woodbridge R.O.A."





**PUBLIC INSPECTION** of Etobicoke's new Hydro building followed the opening ceremonies. Here Tom Miller, second from right, explains meter testing to Mrs. George Trowhill, Willard Miller and Mrs. F. M. Hunter.

Reeve W. B. Lewis termed the opening of the new Hydro building, "a milestone in the history of Etobicoke Township." "It reflects the tremendous expansion taking place in this area. In the last 10 years population has increased from 16,000 to 72,000, and during the last five years, the value of building permits reached a total of \$30 million. As of March 31 of this year, building permits have been issued totalling more than \$9½ million." Reeve Lewis complimented Ontario Hydro on the splendid manner in which the township had been standardized at cycles.

"I received only two minor ones pertaining to changeover," he said.

Brief addresses of congratulation were offered by W. Elmer Brandon, M.P.P. for York West; D. P. Cliff, Secretary-treasurer, O.M.E.A.; N. A. Grandfield, President, A.M.E.U., and M. J. McHenry, Director of Consumer Service, Ontario Hydro.

#### **Building Inspection**

During the inspection of the new building which followed the formal opening, there were numerous approving

comments on this thoroughly modern building designed for customer convenience and fast efficient service.

In the main business office, at the entrance to the building, birch plywood has been used with tasteful effect for wall finishes and counters. Finished in a light wheat tone, this plywood, along with the sand colored vinyl plastic floor with green feature strip, imparts a sense of spaciousness to the public area. Ceilings throughout are of acoustic tile. Particular care has been taken in the individual room color schemes based on the particular exposure. Contrasting accent walls were used in many rooms to attain the desired effect.

In planning, special attention was given also to the employee's comfort. Lunch and rest room facilities for the ladies of the office staff are located on the first floor in a cheerful room with a sunny southern exposure. Lunchroom space for the men is provided in a basement room large enough to accommodate staff parties and general meetings. This also has complete kitchen equipment.

Lighting throughout is by fluorescent

units. The offices have an illumination of 35 foot-candles and the engineering and draughting room—65 foot-candles.

#### **Provision for Second Storey**

The building has been designed with provision for another storey over the stores area. When completed, the second floor will be in the shape of a "U" with the area over the stores department forming a court open to the south end. Construction is of buff brick with the main entrance being of stone and granite. Aluminum windows have been used throughout.

The storage of transformers, cable reels and other heavy equipment was a vital consideration in the design. This accommodation has been provided by installing mono rails for unloading trucks at the rear which transfer this equipment to a large freight elevator, which, in turn, lowers it to the large storage area in the basement.

The opening of this up-to-date Hydro building is representative of the preparations being made by many local Hydro commissions to keep pace with Ontario's phenomenal growth.—by H. B. Wood.





◀ **NEW WORK SIGNS**—Ontario Hydro's Western Region is conducting some experiments with a new type of work sign. These signs are in the form of a rubber cone 15 inches in diameter at the base and 29 inches high. A 12-inch square rubber sign fits into the top of the cone. The idea of using these cones was conceived by Harry Morgan, Safety Officer for the Western Region. After discussion with Regional management, and with the concurrence of Hydro's Accident Prevention Department, it was decided that some experiments might be worthwhile. It was felt that the wording "Hydro Work" would convey more information to the motorist than just "Men at Work." These signs have black lettering on a yellow background. "Scotch lite" letters have been used on some signs to determine their suitability for night work. The picture shows Mrs. H. E. Collins indicating the fact that these signs are light and flexible, and will not damage a car in case of collision.

**HYDRO NIGHT**—Representatives of several municipal Hydro commissions in the Niagara District, as well as Ontario Hydro guests, attended Thorold Kiwanis Club's recent "Hydro Night" dinner. Guest speaker was A.M.E.U. President Norman A. Grandfield of Galt, shown on the right with President "Irv." Ohm of the Thorold club. Introduced by H. Allan Howard, Manager of Thorold P.U.C., Mr. Grandfield traced the history of Ontario Hydro, and the part that Ontario municipalities of the province had played in building up the publicly-owned Hydro system.







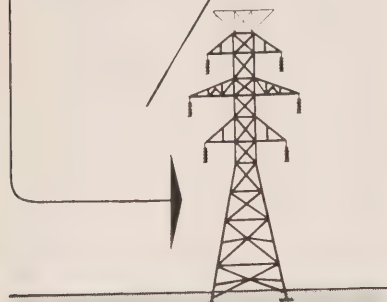
**▶ RAPID GROWTH**—Indicative of the almost “fantastic” growth which Ontario—all Canada, in fact has experienced in recent years is the record of North York Township, Toronto suburban area, where Ontario Hydro recently completed frequency standardization operations. Since 1947, when original estimates were made for the overall Southern Ontario standardization program, the number of domestic customers in North York has more than tripled, jumping from 9,600 to a current total of more than 29,400. There are now more than 240 industrial customers as compared with only 94 in 1947, while the number of commercial customers has risen from 624 to over 1,700. In neighboring York Township where changeover work is now in progress there have been parallel increases of a significant character. Domestic customers, for instance, have increased from 23,837 in 1947 to over 27,000 at present. Aerial photo shows a new North York housing subdivision, one of many which have sent the number of domestic customers soaring.

**▶ CORONATION-BOUND**—Five members of the Toronto Hydro-Electric System staff, chosen to attend the Coronation of Queen Elizabeth by their respective Service organizations, were congratulated by the Commission and presented with “service packs” on behalf of the Toronto Hydro staff. Wishing the group *bon voyage* were H. J. MacTavish, General Manager, extreme left; Bert Merion, Chairman, extreme right, with Mayor Allan Lamport, third from right, demonstrating the feather-weight quality of the bags. Bound for England, from left to right, are: John Dalrymple, Ross Stewart, Gordon Spiker, Bob Owen, and Fred Topham, V.C. In the background is a photo of the Toronto system’s former Chairman, the late Loftus H. Reid, who before his recent death had shown great interest in assisting to arrange the presentation to these members of the staff. The brief ceremony in the Toronto Hydro System’s board room took place a few days after Mr. Reid passed away.





## ALONG HYDRO LINES



### Lakehead Commission Reports Annual Surplus

Fort William Hydro-Electric Commission has announced a new operating surplus in 1952 of \$169,355. Gross revenues were \$1,254,990 and gross expenditures, \$1,085,635.

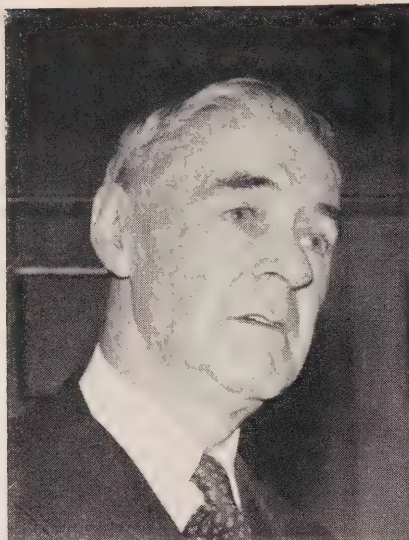
A total of \$139,788 was spent on a new substation and distributing facilities, and \$16,467 was refunded to the city as an accrued surplus from services provided.

An all-time record monthly peak power load of 26,427 kilowatts was established last year. This is an increase of 6¼ per cent over 1951. The commission spent \$38,172 on new and improved lighting units during the year, with 43 existing units being increased in size and 155 new units installed.

### Name Electricians' Licensing Board

A three-man board of examiners for licensing electricians has been appointed by the Stratford City Council. Named to the board are: Frank E. Peter, Reginald R. Skidmore, and Henry Karkheck, local inspector with the Ontario Hydro, appointed to the board by virtue of his position.

## APPOINT "BERT" MERSON TORONTO HYDRO CHAIRMAN



BERTRAM MERSON

**P**ROMINENT in Hydro and trade circles throughout Ontario for many years, Bertram (Bert) Merson, was named Chairman of the Toronto Hydro-Electric System recently.

The popular Hydro official succeeds the late Loftus H. Reid, who died suddenly on April 21 after a brief illness. Formerly Vice-Chairman of the Toronto System, Mr. Merson became Acting Chairman following Mr. Reid's death. He was first appointed as a Toronto Electric Commissioner in 1946.

Born and educated in England, Mr. Merson came to Toronto in 1907, joining the old Toronto Street Railway as a conductor in 1911.

A few years later he entered civic service, being Secretary of the Old Age Pension Committee in Toronto. During World War II his services were loaned to the Wartime Prices and Trade Board as Secretary of the local rationing board.

In trade union circles, he has also played a prominent role being a former Vice-President of the Canadian Trades and Labor Congress of Canada. He is also a former President of the Street Railway Union, the Municipal Employees City Hall Union, and the Toronto Trades and Labor Council. He still retains his interest in this work.

Well and favorably known in Hydro affairs, Mr. Merson is particularly active as a member of the Ontario Municipal Electric Association, being an enthusiastic participant in the deliberations of this organization during the annual convention each year.

With social service work high on the list of his varied interests, Mr. Merson's contribution, in his capacity as Secretary-Treasurer, to the achievements of the Municipal Hydro-Electric Pension and Insurance Committee is worthy of particular note, especially in the introduction of the supplementary provisions of this committee's plan.

Like his esteemed predecessor, the late Mr. Reid, the new Chairman of the Toronto Hydro-Electric System is an ardent member of the Church of England, being a lay delegate to the Synod of the Toronto Diocese. A member of the Masonic Order, Mr. Merson is married with two sons and one daughter.

### Peterborough Plans Capital Expenditures

Peterborough Utilities Commission will spend an estimated \$282,937 on capital improvements in 1953, of which \$231,000 will be for electrical department expenditures.

The largest single items in the estimates are \$90,000 for the electrical distribution system, and \$50,000 as part payment for a new substation. Debentures to cover the total cost will be issued on June 1, September 1, and December 1.

### Brantford Customers Get Water Heaters

Brantford Public Utilities Commission has announced that some 3,000 water heaters now in Brantford homes will be

given to customers of the local commission.

The new owners will pay the same flat rate for the heaters, but the monthly service charge of 11 cents will be discontinued. In future, the owners will be responsible for the upkeep of their heaters.

Manager William Catton explained that letters had been sent to all householders affected, giving details of the change. Heaters will still be supplied free of charge to anyone whose application has been received by the PUC. Future applicants will be asked to supply their own equipment.

The new move will save the commission a considerable sum, Mr. Catton revealed, and at the same time will release much-needed labor for other projects.



**Veteran Cableman  
Retires at London**

Archie McCulloch, 65-year old cable splicer with the London Public Utilities Commission, retired recently after almost 32 years' service.

He came from Scotland in 1912 and settled in Toronto for two years before moving to London. Since starting work, Mr. McCulloch has been in charge of laying all underground cables in London.

The local citizens, accustomed to seeing him "pop-up" unexpectedly from sundry manholes throughout the city, affectionately dubbed him "Mr. Manhole."

An expert in this work, Mr. McCulloch was loaned to Ontario Hydro to supervise cable laying operations in the district and the installation of high tension cables in St. Thomas, Woodstock, Paris, Sarnia and Strathroy.

Widely known as an entertainer, Mr. McCulloch remarked "that there isn't a church in London that I haven't helped out at one time or another."

Reflecting this side of Mr. McCulloch's personality was his round of activities on the particular day he retired: He played piano at a Foreman's Club meeting in the local YM-YWCA, switched to the organ for a degree meeting in the Masonic Temple, and ended up the evening as master of ceremonies for the Kilwinning Lodge Ball.

During World Wars I and II, he organized concert parties for the entertainment of troops at various camps. He performed in all of the Kiwanis minstrel shows of past years.

**Classified Ads**

**FOR SALE**

ADDRESSOGRAPH machine, Model 900, in excellent condition; approximately 10 years old; \$100.00.—Apply: Miss M. Danter, Secretary-Treasurer, Mimico Public Utilities Commission, 261 Church St., Mimico, Toronto 14, Ontario.

**POSITION VACANT**

ACCOUNTANT and Office Manager for Leamington P.U.C., qualifications to include senior matriculation; five years' accounting experience on general books; ability to supervise staff; utility experience preferred. Salary commensurate with responsibilities. **Apply in writing only to** N. Timberlake, Manager, Leamington P.U.C., 15 Princess St., Leamington, Ont.

**Reduce Hours  
For Employees**

Sudbury Hydro Commission has granted its office staff a 36½-hour week and approved a wage agreement granting other employees a five-cent, "across-the-board" raise, and a reduction to a 40-hour week, with a 44-hour take-home pay.

With the reduction in office hours, the Sudbury Hydro office will close at noon on Saturday, instead of at 1 p.m.

Stratford Public Utility Commission has approved a shorter work week for hourly-paid employees of the electrical and waterworks departments. All such employees now work a 42-hour week, instead of 44 hours, except operators who work 46 hours, instead of 48 hours, all with the original take-home pay.

**Wallaceburg Plans  
Plant Expansion**

Wallaceburg Hydro-Electric Commission will proceed with a \$235,000 plant expansion program. Costs of frequency standardization in the Wallaceburg area and the erection of a third, 60-cycle substation are included in this expenditure.

Heavy equipment for the new sub-

**Employee Completes  
33 Years' Service**

James K. Shaw, chief day operator, Port Arthur P.U.C. sub-station at Current River, retired recently after 33 years' service.

R. B. Chandler, P.U.C. Manager, presented Mr. Shaw with a wallet containing a sum of money on behalf of commission employees during a social evening attended by fellow-workers and friends.

Mr. Shaw spent 16 years as relief operator; 11 years as day operator at the Current River substation; one year as night foreman in the car barns, and three years on the street railway.

He came to Canada on April 18, 1906, "the same day as the San Francisco earthquake." During World War I, he served three years overseas with the 28th Battalion and the 1st Machine Gun Battalion. In World War II, he served two years with the 101st Veterans' Battalion.

station will be installed outside the present station, and all controls will be localized on a modern switchboard panel. The new equipment will be the latest in design for operating and controlling 60-cycle current.

**Another Step Forward**

CANADA, and particularly Ontario, moved another step closer to the culmination of a 30-year campaign, a few days ago, when Glen R. Law, Presiding Examiner of the U.S. Federal Power Commission, recommended that the New York State Power Authority be licensed to develop the St. Lawrence River for power purposes in partnership with Ontario Hydro.

Under the terms of the proposed St. Lawrence Seaway and Power plan, Ontario Hydro (already designated as the Canadian agency in the project) and the New York Authority would construct power facilities in the International Rapids Section of the river to develop a total of 2,200,000 horsepower which they would divide equally.

During his regular monthly report to the people of Ontario over a province-wide network of radio stations, a few hours after Mr. Law's decision had been announced, Hydro Chairman Robert H. Saunders welcomed this latest turn of events, assuring his audience that the Commission would be ready to proceed with its share of the great project "just as soon as final approval is given."

Mr. Saunders, however, cautioned against over-optimism regarding an immediate start. He said there might be fairly lengthy delays to permit U.S. parties opposing the scheme to submit their objections to the Federal Power Commission and possibly refer their case to the U.S. courts.

"Even with Mr. Law's favorable decision in respect to New York State's application, the earliest we can expect authorization is mid-September, and this does not take into account any court action by opposition parties," he said. "While the prospects are certainly encouraging, I feel I should warn you that if these selfish interests carry their case beyond the Federal Power Commission, it could mean a delay of at least a year, or possibly 18 months from now before we have final authority to proceed."



Unique equipment altered for 60-cycle operation  
during "changeover" at Windsor plant

# PRESSING MATTER



ONE of the two, 1,500-ton clearing presses in operation at the Windsor plant of the Kelsey Wheel Company, largest of their type altered by technicians to date.

**I**F YOU drive one of the many popular types of Canadian cars, it is quite probable that you move on wheels shaped by one of the two giant, 1,500-ton clearing presses at the Windsor plant of the Kelsey Wheel Co. Ltd.

These presses, the largest of their type Ontario Hydro has had to deal with in connection with its standardization program to date, are powered by 75-horsepower motors. They were the largest of the 1,300 frequency-sensitive items changed over at the Kelsey plant.

The huge presses which play such a vital role in the Canadian automotive industry are 30 feet high, 13 feet wide and 9 feet deep, and weigh, together with motor, some 70 tons.

Exerting their 1,500-ton pressure with a deceptively "firm" squeeze, they can perform a great number of wheel operations an hour.

## Firm Expands

Standardization operations preceded a \$2,500,000 plant expansion program at Kelsey's, enabling all the new equipment to be installed at 60 cycles. Thus the firm profited by the more economical prices and greater range of 60-cycle equipment, while both Kelsey Wheel and the Commission were saved the expense of standardizing it.

A visit to the plant of this important customer gives more than a hint of the scope and variety of booming Ontario industry of which Hydro is an active partner.

Alvin G. Brenneman, Hydro's project manager in the Windsor area, said that both before and during standardization close liaison was maintained between Hydro engineers, Kelsey President and General Manager L. W. Downie; Vice President in charge of Production, W. A. Harrison; Chief Engineer, C. M. Nas and other key personnel.

As a result, no unexpected difficulties arose to disrupt the meticulous planning for the entire population.—by Frank C. Wood.



# HYDRO

# Home Forum

by EDITHEMMA DIGHTON

Hydro Home Economist



[T isn't too late to make a resolution to live on a balanced budget, even though most experts say budgets should be made up a year in advance. Many banks, incidentally, render a fine service to their customers in helping them set up a schedule of expenditures based on the family income.

\* \* \*

Bank budget experts invariably advise making provision for a 10 percent saving of the total income. While this is very sound advice it isn't always possible. The individual must decide what proportion of their income they wish to save and proceed on that basis, placing the weekly or monthly pay cheque in a savings account immediately.

\* \* \*

Many families do their spending in three ways:

1. Paying for bonds, unemployment and group insurance, pension and income taxes through salary deductions at the source.

2. Paying bills over \$10 by cheque, i.e., rent, mortgage, taxes, life, fire and other insurances, medical expenses, charitable donations, and other budget items.

3. Paying cash for food, laundry, household sundries, electricity, telephone, clothing, transportation, entertainment, and other personal items.

\* \* \*

Remember that food costs alone are not the measure of good family meals. Items which may be considered in the luxury class are out-of-season fruits and vegetables, cream, bacon, special mixes and flours, commercially-prepared pickles, preserves, and other condiments, bakery items, ready-to-eat cereals, nuts except peanuts, expensive cuts of meats, etc.

## A STUDY IN FOOD COSTS

Two sample menus for a family of five (two adults and three children) illustrate how the housewife can reduce food costs, yet serve appetizing, nutritious meals.

Canada's Food Rules indicate the need of daily servings of 1 citrus fruit or good substitute, 1½ pints of milk for children, ½ pint for adults, 1 serving potatoes, 2 servings of other vegetables, 1 raw vegetable, 1 serving whole grain cereal, 4 slices enriched bread, 1 serving meat, fish or poultry, and 4 servings per week of eggs and cheese.

MENU I lists costs of average servings for three ample meals planned to include these essentials.

MENU II shows how too much money can be spent on foods that do not justify their cost in actual food value.

### MENU I

<b>Breakfast:</b>	
Grapefruit Juice .....	\$ .11
Rolled Oats with ½ c. milk .....	.12
Poached egg .....	.20
Whole Wheat toast, butter .....	.17
Homemade jam .....	.10
Coffee for adults .....	.06
Milk for children .....	.14

### Dinner:

Baked stuffed heart .....	.42
Potatoes boiled in skin .....	.04
Buttered beets .....	.15
Raw turnip sticks .....	.01
Orange almond pudding .....	.19
Homemade Wheat germ muffins, buttered .....	.34
Milk for adults and children .....	.19

### Supper:

Tomato—meat—macaroni .....	.41
Cabbage salad .....	.10
Whole wheat bread, butter .....	.17
Cherry cobbler, fruit sauce .....	.28
Tea for adults .....	.04
Milk for children (½ qt.) .....	.10

\$3.34

### MENU II

#### Breakfast:

Cornflakes with ¾ qt. milk .....	\$ .24
Bacon .....	.52
White bread, butter .....	.17
Jam .....	.10
Coffee for adults and children .....	.15

#### Dinner:

Fried Sirloin Steak .....	1.60
Mashed Potatoes .....	.06
Canned corn .....	.20
White Bread, butter .....	.17
Raisin Pie .....	.37
Tea for adults and children .....	.08

#### Supper:

Bologna .....	.34
Fried potatoes .....	.04
Catsup (grocer's) .....	.09
Whole wheat bread & butter .....	.17
Boston Cream Pie .....	.48
Cookies (grocer's) .....	.18
Tea for adults and children .....	.08

\$5.04





TULIP TIME



ONTARIO HYDRO

# News

JUNE, 1953 VOL. 40, NO. 6



SIGHTS ON SARNIA

Story on page four



# ONTARIO HYDRO

# News

JUNE, 1953

VOLUME 40, NUMBER 6

Published by

THE HYDRO-ELECTRIC POWER COMMISSION

OF ONTARIO

620 UNIVERSITY AVENUE, TORONTO



## CANADA'S QUEEN

SINCE we last greeted you in this column, the world has witnessed one of the most significant events ever recorded in history.

The Crowning of Queen Elizabeth II was without parallel in sheer magnificence and pageantry. The great crowds, the rich colors, the cheerful playing of bands, the solemn rituals, and the tremendous ovations which greeted the young Queen as she rode from Buckingham Palace to her Coronation and on her triumphal return, merged to create a captivating and glittering spectacle.

But, behind this brilliant and spontaneous manifestation of national rejoicing was the heartwarming evidence of a genuine affection in the hearts of thousands of peoples from many lands—peoples of all colors and creeds and classes—for the British Royal Family and what they represent.

For Canadians the Coronation marked the first Crowning of a Queen of Canada. It reaffirmed in their minds their mystical relationship with the British Crown and all its glorious traditions. It also emphasized for them the proud position which this comparatively young country occupies today, and of the great contributions it has made and will continue to make as a growing world power.

Although the Crown links the past with the present and the future, symbolizing values that transcend both time and change, the Coronation of our new Queen presented insurmountable evidence of great scientific advances throughout the Commonwealth and the world. For the first time in history we were able to witness the splendor of this great event a few hours after it took place through the magic of that new electronic device—television.

At the Coronation of King George VI it was considered miraculous that we could hear the ceremony through the medium of radio. But, on June 2, 1953, a scant 16 years later, science had progressed to the point where hosts of loyal spectators, thousands of miles from London, were able to participate even more fully in the great event in the comfort of their own homes.



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### CONTENTS

	Page
Mobile Camp	2
Sights on Sarnia	4
All-Canadian Product	11
Plane Talk	14
Today the Seedlings	16
Challenge for Engineers	18
Foto-News	19
Hydro Home Forum	22
Fourth City	24
Board of Trade Tour	28
Around the Hydro Circuit	30
Maybe You'll Laugh Too	35
This and That	36

### COVER PHOTOS

THIS month we salute the City of Sarnia, an Ontario metropolis which mirrors the great industrial upsurge which has focussed the eyes of the world on Canada. Shortly after the photo on this month's front cover — Christina Street, Sarnia's main thoroughfare — was taken, a severe tornado struck the city, blowing down some of the signs and damaging some of the buildings depicted. In saluting Sarnia, Ontario Hydro News congratulates its progressive citizens on the courage they have shown in immediately setting to work to remove all traces of the damage and rebuilding their municipality on even more impressive lines. On the back cover, a freighter is shown passing through the St. Clair River at Sarnia which sees more shipping in a six-month period than passes through the Suez, Kiel and Panama Canals in a year.





*ALONG the upper reaches of the Nipigon River in Northwestern Ontario, the sound of construction activity is breaking the silence of the great forests as workmen move in to commence the installation of two additional units at the Commission's Pine Portage Generating Station, 73 air-miles northeast of Port Arthur. This will increase the station's dependable peak capacity to 168,900 horsepower by early 1955 to keep pace with the ever-mounting power needs of this bustling part of Ontario.*







ONTARIO HYDRO'S new trailer camp, destined for use in Northwestern Ontario, as it looked during trial run

# MOBILE CAMP

by W. B. PRENTICE

**T**O REDUCE field camp costs in northern sections of the province, Ontario Hydro has taken a leaf from the books of the old travelling circus.

A streamlined, aluminum mobile trailer camp for field work, has been developed by Commission engineers to minimize the need of erecting costly tent and prefabricated camps in working areas.

The new trailers, patterned after the compact design of the modern Pullman coaches, but having the mobility of the old-time circus caravans that moved from town to town, will be used this year in Hydro's Northwestern Region.

The mobile camp consists of seven automobile-type trailers, including a kitchen, two diners, an office, and three sleeping-cars. When placed in a semi-circle in distant northern locations, where line maintenance work is done in remote areas, the seven trailers instantly form a construction camp capable of housing, feeding and administering to 28 men.

## For Line Maintenance Work

Northwestern Ontario will be the first destination of this new mobile camp where it will be used in transmission line maintenance work.

Previous to the development of these trailers, Hydro had to erect, at considerable cost in time and money, a semi-permanent camp to house and feed personnel.

It is estimated that the use of the trailers in Northern Ontario will reduce camp costs considerably. Part of the saving will be in time (usually two or three days) required to establish a semi-permanent camp of tents and prefabricated dwellings. The mobile camp will also obviate dismantling semi-permanent facilities and shipping them to another point of operation. Wear and tear on semi-permanent camps is also extremely heavy, and materials must be renewed at frequent intervals.

## Light In Weight

Light in weight, through use of aluminum fabrication, the new Hydro mobile camp will resemble a Montreal-Toronto night-flyer in its comfort and practicability.

The sleeping cars are equipped with lower and upper bunks and small heating units. Ventilation of each sleeping unit is provided through sliding windows which are screened for summer living.

Tile floors, built-in drawers under the lower bunks, and cupboards make for tidy and comfortable accommodation.

The kitchen is a unique piece of functional planning that allows the camp chef ample space to prepare wholesome camp meals. Three meals a day for 28 outdoor-working men can be quite a daily chore!

The dining car is much like the local "diner" favored by city workers. Stools are provided facing one wall, with a hard-topped counter provided on which to place dishes. Meals will be served to the crews in the diners.

For the administration work associated with any project, a foreman's trailer has been designed, complete with desk and filing cabinets. Further sleeping facilities are available in this unit.

Built in Peterboro, in the shops of McGuinness Trailer Company, the camps were first sent to Hydro's A. W. Main Service Centre, just outside Toronto, for final fittings. They were then shipped by rail to the Northwestern Region for use in the vicinity of the Nipigon River where Ontario Hydro is undertaking an extensive rehabilitation program on the older high tension transmission lines.





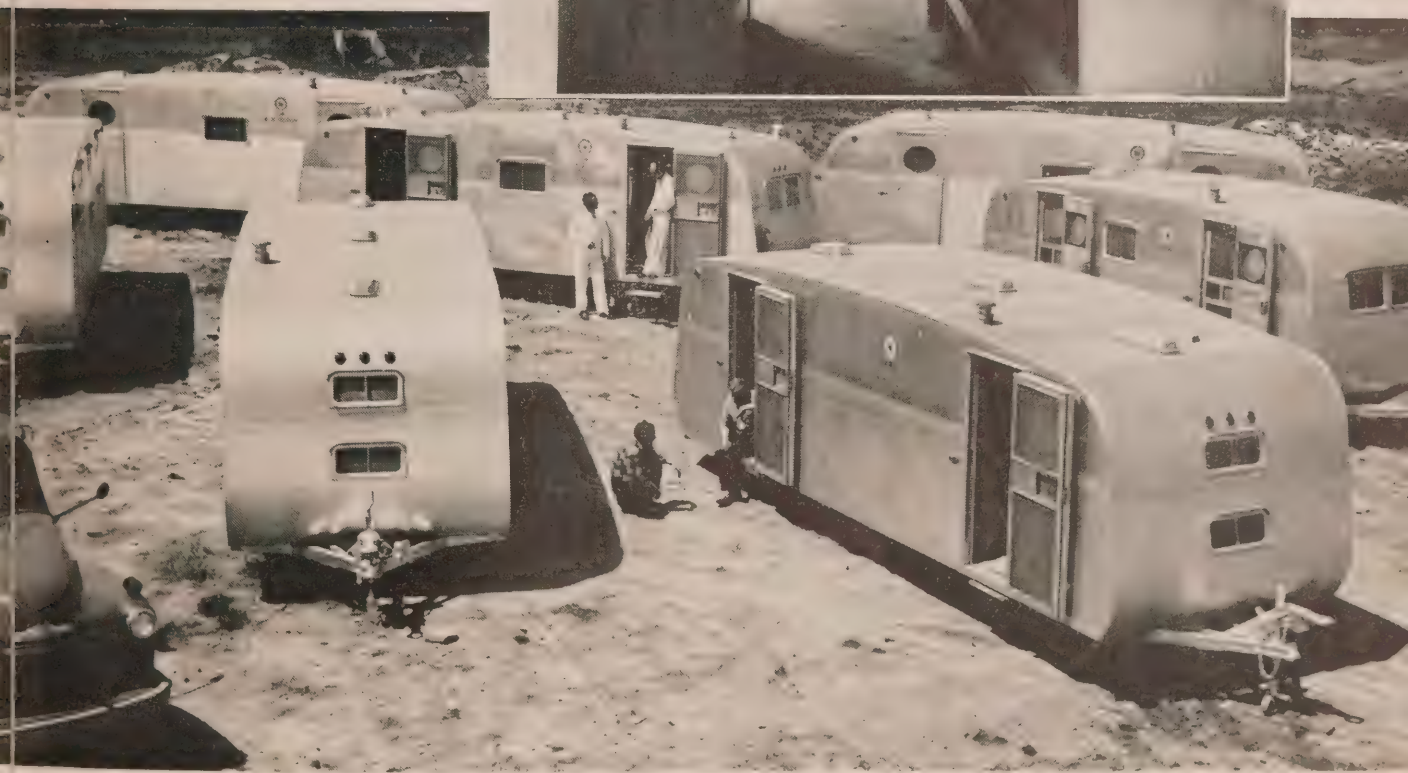
MEALS will be served to maintenance crews in two comfortable dining-trailers equipped with stools and gleaming table-counters. ▶



THREE sleeping-cars, embodying most of the amenities found in a modern Pullman coach, including electric lights, fans, and comfortable berths are an integral part of camp. ▶



TYPICAL GROUPING of Hydro's new mobile camp while on location. Camp includes two trailers, three "sleepers," office and kitchen. ▶



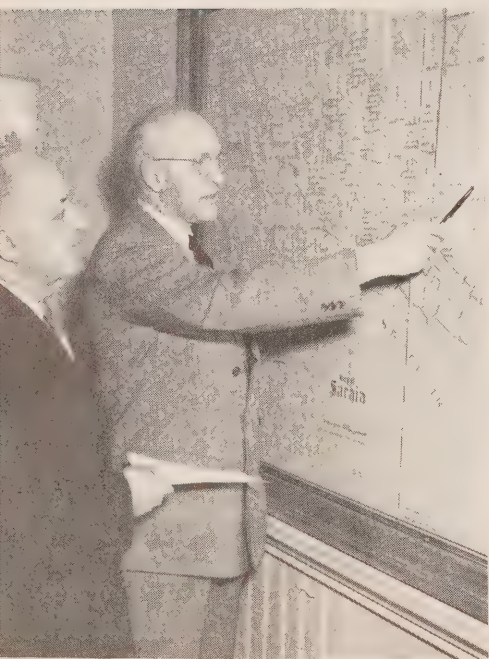




# Sights on Sarnia

by HARRY M. BLAKE

(First of a series of three articles portraying the great industrial enterprise of historic Lambton County)



**R**OMAN GALLEYS carrying garrison troops to and from Britain, when driven off their course by a furious nor'wester, were wont to seek refuge in the sheltered bays on the east coast of the Island of Guernsey, which they called Sarnia. Here they were safe from the dangerous tide-rips of the Channel Islands and could wait out the return of calmer weather. Going ashore, the legionaries would build temporary camps, and after sacrificing a kid to the sea-god *Neptune* and performing the customary libation ceremonies, settle down to beguile the time, dicing with their bone or ivory *tesserae* and extolling the prowess of their favorite gladiators.

After the fall of the Roman Empire, North Sea pirates swept down upon the Channel Islands. In the year 933, they

became part of the domain of William Duke of Normandy, and since the reign of John, while enjoying many autonomous rights, their allegiance has been to the English Crown. During the mutations of time and circumstance, Sarnia came to be known as Guernsey, the ancient name passing into comparative oblivion.

It remained for Sir John Colborne to recall the old appellation when, in 1835 he visited the village which was later to become the county seat of Lambton county. Sir John (later Baron Seaton) was then Lieutenant-Governor of Upper Canada (Ontario). Prior to that appointment, he had held a similar office in Guernsey. He had commanded the 52nd Regiment at Waterloo, and here he was right at home with comrades who had fought in the Napoleonic wars.

## Choosing a Name

In 1835, the people living in the settlement, on the St. Clair River, which

◀ RECENT annexations have increased the size of Sarnia 4½ times. City Manager E. Royden Colter, right, discusses assessment problems with Tax Collector Walter Palmer.



# **FLOURISHING HYDRO MUNICIPALITY TOOK ITS NAME FROM THE DAYS OF THE ROMAN EMPIRE**

Since the earliest pioneer days, had been called "The Rapids," were concerned with the selection of a more attractive name for their thriving community. As stated, many of them were veterans of Wellington's campaigns. Others were sturdy Scottish artisans. And there were not a few anglicized French families of the old Norman Channel Islands' stock.

"Buenos Aires" had been suggested by the Anglo-French faction, but the Scots, with all the stubborn tenacity of their race, were holding out for "New Glasgow."

Feeling was running high when Sir John Colborne appeared on the scene. The Lieutenant-Governor pointed out that "Buenos Aires" was the capital of the Argentine and that there was already "New Glasgow" in Nova Scotia. "Sarnia" would be a name unique in North America, as most of the old Roman place names had long since been changed or modified, probably in the whole world. It was decided to put the question to the vote.

There was no women's suffrage in those days, but the influence which the fair sex exercised over the menfolk was at least as great as at the present time. The ladies were enthusiastic about the

name "Sarnia." Thirty-six of the 52 males who possessed the necessary property qualifications cast their ballots for "Port Sarnia." With the coming of the railways, "Port" was dropped and "Sarnia" became the permanently-established name.

## **A Spectacular Development**

Like its namesake of eighteen centuries ago, Sarnia provides a good refuge for shipping, especially when equinoctial gales whip the blue water of Lake Huron to foaming fury. Together with adjoining Point Edward, it also furnishes excellent facilities for vessels docked during the non-navigation season for refitting and repairs. But oh my—*by Jupiter! by Mercury! and by Hercules!* if Caesar's shipwrecked legionaries were to see what kind of a place this modern Sarnia is growing to be, their eyes would start out of their heads!

The most spectacular approach to this rapidly expanding industrial centre is by night—along the American side of the St. Clair River. For miles along the Canadian shore the power and beauty of electric lighting is revealed in an illumination which rivals a pyrotechnic display. All the buildings and structures of

"Chemical Valley"—the greatest concentration of the petrochemical industry in Canada—stand out in a glittering rampart against the dark sky. Reflections, traced in argent and gold, are thrown out across the river, and here and there from a "spiring" chimney shoots a tongue of flame, enhancing the chromatic effect.

Part of this vast and expanding manufacturing laboratory is within the recently extended city limits of Sarnia. Part of it is outside. Practically all the workers, however, live in the city, as well as many thousands more employed by business and industry in the heart of the "old town." Since 1941 the population of Sarnia has more than doubled, increasing from the 18,191 reported in the Dominion census for that year, to an estimated 40,000 at the present time.

## **Meeting Problems of Growth**

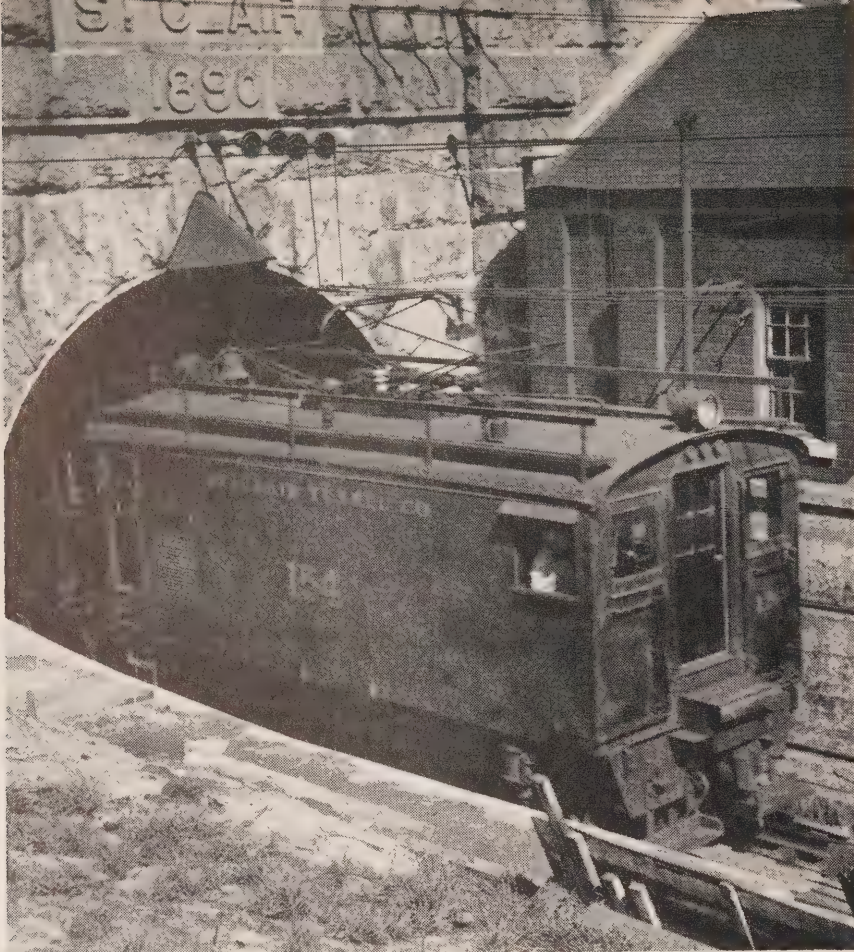
The old City of Sarnia was cramped within an area of 2,000 acres. A "new

*(Continued on page 6)*

**SARNIA Hydro-Electric Commission in session a few days before the tornado. Left to right—Manager C. S. Phelps, Mayor W. C. Nelson, Commissioner J. T. Barnes, Chairman J. C. Barr, Commissioners F. J. Maher and D. P. Herring and H. S. Luckins, Sarnia Secretary.**







**BUILT in 1890, the tunnel under the St. Clair River at Sarnia links the C.N.R. with the Grand Trunk Western in the United States**

successful in enlisting their wholehearted support in a master plan for future development, which, while taking into consideration the financial obligations involved, will endeavor to pace the phenomenal industrial expansion in the district and provide all the citizens, whether in the new areas or the old, with facilities of which they can well be proud.

#### Past Achievements

Sarnia has a good foundation to build upon. Through the St. Clair River passes more shipping in a six-month period than is handled in a year by the Suez, Kiel and Panama canals combined. To meet the requirements of call, dockage and refitting, Sarnia's protected waterfront is furnished with 6,700 feet of berthing facilities capable of handling annually a total of approximately 1,250 ships, with a registered tonnage of 2,000,000 tons. Now that the St. Lawrence Seaway is a definite prospect, plans call for the building of three huge piers to accommodate ocean-going vessels. These, according to present planning, will have a combined length of 4,850 feet and their construction, when undertaken, will call for a Government grant of approximately \$20,000,000.

In railway facilities, Sarnia and the adjacent municipality of Point Edward are equally fortunate. They are served by the double-track main line of the Canadian National Railway running between Montreal, Toronto and Chicago, and by the Chesapeake and Ohio Railroad, which links with the Canadian Pacific at Chatham.

The C.N.R. connects with its subsidiary the Grand Trunk Western, through the

city" was created in 1951 by the annexation of 9,000 acres from the surrounding township. This has given ample opportunity for growth and industrial development, but it has also created many problems for the progressive city council. These have been accentuated by the courageous decision to regard the whole city as one and indivisible as far as services and improvements are concerned. City Manager E. Royden Colter expresses it this way:

"This city should grow as one unit, not as the new city or the old. Only as one big unit working towards a common purpose can we hope to achieve success. The people of our community must determine what kind of a community we want, what the possibility of its achievement is, and what things are needed to achieve this kind of a community."

The people of Sarnia have not been dilatory in responding to this democratic challenge. Mayor W. C. Nelson has been

**MODERN** equipment and excellent office accommodation are reflected in the efficiency of Sarnia Hydro staff.

**LEFT:** In the spacious main office, Elva Barnes, cashier, handles accounts of three customers. **RIGHT:** Mrs. Doris Bush and Miss Barbara Marshall at work in the meter records room at Sarnia.





St. Clair tunnel, built in 1891, and at the time regarded as one of the most impressive engineering feats on the American continent.

The tunnel, with approaches, is 11,558 feet long. The section under the river has a length of 6,026 feet and a diameter of 20 feet. It is lined throughout with cast iron plates bolted together in segments, and weighing a total of 28,000 tons.

This great construction job was carried out by Joseph Hobson, a Canadian engineer, to whose credit are also the International Bridge connecting Fort Erie and Black Rock, the replacing of the old suspension bridge at Niagara Falls, as well as the Victoria Bridge spanning the St. Lawrence River and linking Montreal with St. Lambert on the southern shore.

New installations, estimated to cost in the neighborhood of \$2,100,000, are being carried out by the Chesapeake and Ohio Railroad in preparation for a car ferry service which, it is expected, will be in operation between Sarnia and Port Huron this year. The program includes dredging, slip building, track changes and the provision of facilities for servicing diesel equipment. About \$1,600,000 of the total expenditure will be spent at Sarnia, where the ferry docks will be located between the properties of Imperial Oil Limited and Polymer Corporation.

Symbolic of the enduring friendship between Canada and the United States is the Blue Water Bridge linking Sarnia with Port Huron, and operated, under present arrangements, by the State Bridge Commission of Michigan. This handsome structure, which, apart from the approaches, consists of a single span supported by two concrete piers, has tremendously increased the volume of tourist traffic passing through Sarnia. Since it was built 14 years ago, 7,000,000 cars have passed over its smooth concrete flooring, with a traffic record of nearly a million cars in 1952 alone.

### Expanding Industries

Apart from the vast petrochemical concentration in "Chemical Valley," many important industries are located in Sarnia, most of which are in the throes of an expansion necessitated by the rapidly increasing local population and the demand for Sarnia products throughout Western Ontario, and, in some cases, from customers in other parts of Canada and even abroad.

Included among the manufacturing establishments are Holmes Foundry, engaged in the making of engine blocks and rock wool insulation; MacCraft In-



SARNIA district is the home of Canada's petrochemical industry. At night the great plants, including that of Polymer Corporation (upper photo), extending for miles along the St. Clair River, known as "Chemical Valley," are illuminated, and, with flames darting from towering chimneys into the darkened sky, they provide a spectacular display. Lower photo gives a general view of several large industries in the petrochemical area.

dustries, boat builders and manufacturers of moulded plywood; Mueller Limited, manufacturers of plumbing, streamline fittings and copper tubes; Sarnia Bridge Company, turning out bridge and building structural steel; Sarnia Elevator Company, engaged in the handling and storage of grain; Sarnia Marine and Machine Limited, doing general ship repairs and machine work; Superior Products, manufacturing steel roofing, steel stampings and aluminum products, and conducting a tool and die shop; the King Milling

Company, flour millers; the Lambton Awning and Canvas Specialty Company; the Electric Auto-Lite Limited, large scale manufacturers of automotive equipment; a plant of the Dominion Salt Company Limited; the Belton Lumber Company Limited, which is one of the oldest firms in Sarnia, operating extensive yards and drying kilns and supplying lumber of every description to the building trade, and Cabot Carbon of Canada, which is just beginning operations in an

(Continued on page 8)



impressive plant designed for large-scale manufacture of the pigment which gives increased wearing qualities to automobile tires and other rubber products.

The total number employed in these industries is approximately 2,500, and if all the smaller, but thriving factories and workshops in Sarnia were enumerated, together with the men employed by the railways at their yards and terminals, the total would be increased to more than 3,000.

This still does not take into considera-

tion the people employed in that part of "Chemical Valley" now included in the city area. Here are located the great modern refinery of the Imperial Oil Company, one of the largest and most impressive oil refineries in the British Empire; the Polymer Corporation, a publicly-owned enterprise engaged in the fabrication of basic synthetic rubber and the only one in the world which produces the various types of synthetic rubber within one plant; the huge plant of the Dow Chemical Company of Canada, making

a unique and important contribution both industry and therapeutics, and Fibreglas Canada Limited, manufacturing essential insulation product for a wide variety of purposes.

Together, these four establishments employ close to 5,200 people, so that the number employed in industrial vocation in Sarnia city alone totals well over 8,000.

### Institutional Expansion

Sarnia has two large modern hospitals and is headquarters for the Lambton Health Unit which has been recently housed in a new building.

Last year St. Joseph's Hospital treated 10,328 patients and the Sarnia General Hospital, 5,868. A new wing is being added to the latter institution at an estimated cost of \$2,700,000. It will be five storeys with a basement. The cornerstone was laid on October 15, 1952, by Hon. Dr. Mackinnon Phillips, Ontario Minister of Health, officiating at the ceremony.

The Lambton Health Unit, under the direction of Dr. G. L. Anderson, is engaged in very important clinical work associated with the prevention and control of disease. Investigation and inspection of sanitary arrangements in the city and county also come within its purview. During last year, 16,175 school visits were made by unit staff nurses in an all-out effort to keep minor infections and ailments at a minimum. A total of 40 immunization clinics and child welfare conferences were held.

Of vital assistance to Sarnia's impressive



ST. JOSEPH'S Hospital is well-equipped for both emergency and medical cases as its methods of handling victims of the recent tornado amply demonstrated. With the growth and expansion of the area, accommodation is, however, now overtaxed at both St. Joseph's and at Sarnia "General" where a large wing is under construction.



SARNIA'S daily newspaper, "The Canadian Observer," celebrating a century of progress has paced the rapid growth and development of Lambton County since it was founded.



development has been the activity of the Sarnia Chamber of Commerce. Dating its organization from 1922, when it took over the functions of the old Board of Trade, the Chamber has a proud record of service. Succeeding a long line of distinguished predecessors, Roger A. Wilson was elected President for 1953. Associated with him as Vice-Presidents are R. E. Hatch, L. D. Smithers and C. R. Irving. The re-election of J. W. Simpson as Honorary-Treasurer and A. W. S. Bennett as Manager ensures continuation of the sound business policies upon which the successful management of the organization has been based.

Sarnia provides excellent educational facilities up to university matriculation grades. The collegiate institute and St. Patrick's High School had a combined enrolment last year of 1,445 students. There was a total of 25 elementary schools, with a public school attendance of 4,765, and a separate school registration of 1,700. Two new public schools—High Park and King George VI—were opened in 1952. Each has accommodation for 275 pupils. Additional accommodation is also being provided at the separate schools.

Sarnia is served by 50 churches, a greater number per ratio of population than is recorded by most of the great cities of the American continent.

### Well Organized Sports

Here is the home of the redoubtable "Imperials"—a football team which has brought renown to the district through

*(Continued on page 10)*

## Even Greater Future

THE accompanying article was written before a tornado hit the downtown area of Sarnia with devastating force on May 21. Fortunately, while there was appalling property damage, no lives were lost in the city itself, and the industrial area, where the greatest concentration of the petrochemical industry in Canada is located, was untouched.

Sarnia's courageous citizens are now rebuilding certain structures damaged beyond repair, confident that they will have one of the finest cities in Canada.

The tornado interrupted all electrical services in the city. Within a few hours, however, services were restored to the two hospitals, the waterworks and major food production industries, and a considerable number of the "blacked out" domestic services were operating before dawn.

Too much credit cannot be given to Manager C. S. Phelps and Superintendent Stan. McNeil of the Sarnia Hydro-Electric Commission, who organized the repair of the battered local distribution system. The required manpower and materials for rehabilitation flowed promptly and freely into Sarnia from Ontario Hydro's Western Region and other areas, from the municipal Hydro commissions and public utilities in Windsor, Chatham, London, Petrolia, Strathroy, and from wholesaler sources and local industries—exemplifying in spirit and action the adopted motto of the Hydro family—"All for one, and one for all." (In connection with the assistance rendered by neighboring communities, Sarnia H.E.C. representatives gratefully acknowledge the loan of four gas-driven generators by Windsor Utilities Commission and Ontario Hydro's F.S.D. Area Project office which were rushed to Sarnia under Ontario Provincial Police escort shortly after the tornado struck the district.)

Damage to the city Hydro system as a result of the tornado will total approximately \$113,250, Secretary-Treasurer H. A. Luckins announced at a Sarnia Commission meeting on June 10. This figure includes \$6,400 for street lighting damage; \$42,000 for new materials for restoration of lines and services and \$900 damage to traffic signals. Another large item was the extra cost of wages for Hydro workers engaged in damage-repair work, as well as the feeding and housing of outside repair crews loaned by Ontario Hydro and nearby municipalities.



THESE attractive homes are located in one of Sarnia's new residential districts. City's total Hydro load reached 28,209 horsepower recently — a tenfold increase since 1916 — with customers totalling over 10,000, including 9,680 domestic.



SARNIA Customs House located at the Canadian end of the famed Blue Water Bridge. With Sarnia one of the great tourist entry ports, over 7,000,000 cars have passed over the bridge since it was built 14 years ago—nearly a million in '52!



## SIGHTS ON SARNIA

(Continued from page 9)

its brilliant achievements on the Canadian "gridiron." There are also three soccer teams, and baseball and hockey clubs. With its fine stretch of waterfront, Sarnia is ideally located for pleasure boating of every description, while extensive parks, provided with tennis courts and bowling greens, afford an opportunity for additional summertime sports and entertainment.

From the War of 1812 to the fighting in Korea, Sarnia men have taken a prominent part in the defence of freedom. At the present time Sarnia is headquarters for the 31st Field Regiment R.C.A., and the 11th Field Squadron R.C.E.

### An Outstanding Newspaper

Sarnia's daily newspaper, known as the *Canadian Observer* since 1917, and owned and published by the Thomson Company Limited since 1944, will this year celebrate a century of progress in the journalistic field. Born amid the political turmoils preceding Confederation, and originally sponsored by Alexander MacKenzie, who was later to become Prime Minister of Canada, this newspaper, for many years and under various names and owners, while publishing items of wide reader interest, was a weapon in the hands of men engaged in political strife. Today it is organized along the lines and has all the "flair" of a high-class metropolitan daily. It is a powerful supporter of all sound projects associated with the development and expansion of the district and the welfare of its citizens, while excellent reporting and a comprehensive news service mirror for its readers all the leading events at home and abroad. The General Manager is Harold G. Burley, and the Managing Editor, Harold G. McLean.

Chief problems facing Sarnia today, according to City Manager Colter, are associated with the extension of water and sewerage services, the provision of adequate accommodation for the rapidly increasing high school population, and the handling of traffic.

Sarnia receives its water supply not from the St. Clair River, which is lined with industries, but from the clear depths of Lake Huron. Major extensions to watermains were carried out in 1952, and plans provide for the installation of diesel auxiliary pumps and of another mechanically-cleaned intake. Before long, it is expected that all areas in the vastly



**SARNIA City Hall, a solid brick and stone structure, erected in 1876, has been sold to a Vancouver firm which will build a much bigger building on the site with the city leasing a greater part of the new premises.**

expanded city will be furnished with an adequate supply of pure water.

Sewer extensions to the recently annexed areas are admittedly an expensive proposition. Depending upon the support of the citizens for their execution, preliminary plans are now practically completed for a sewage disposal plant interceptor and trunk sewers for domestic and storm protection purposes.

### Solving Traffic Problems

Indicating Sarnia's prosperity, is her traffic problem. Between five and six o'clock on workday evenings, and for many hours on Saturdays, when all Lambton County comes into Sarnia to shop, Christina Street, the main thoroughfare of the city, is a veritable bottle-neck, with automobiles, buses and motor vehicles of every description piling up at every intersection. And this represents only part of the traffic congestion. In the early morning hours, and late in the afternoon, the two roads leading to "Chemical Valley" are filled, bumper to bumper, with cars.

The city is now engaged in a vigorous effort to relieve conditions by the provision of one-way streets and a thoroughgoing improvement of traffic lanes. Graveling and grading were carried out last year on 34 streets, and this year seven miles of new pavement are expected to be completed.

With regard to increased accommodation for high school students, building plans have now reached the blue-print stage.

### Hydro's Important Role

Filling an indispensable role in the community's progress is the Sarnia Hydro-Electric Commission which dates back to

1916. Up to that time electricity had been generated and sold by a private enterprise—the Sarnia Gas and Electric Light Company. The first commissioners were Chester H. Belton and W. H. Kenny, both of whom are still active in Sarnia business affairs today. The load demand in 1916, including that of customers in the adjoining municipality of Point Edward, was 2,755 horsepower. This spring, with Sarnia no longer supplying its neighbor, the load was 28,209 horsepower, or more than a tenfold increase.

The local commission operates four transformer stations and there are 1,122 wire miles of transmission line. Fourteen trucks are employed in regular service. This spring it was supplying power to 10,962 customers, of whom 9,680 were domestic, 1,167 commercial and 115 industrial.

In 1947, Sarnia Hydro completed a system of underground distribution in the downtown area. A considerable number of returned men were employed on this job, which was of no little assistance in tiding them over the period intervening before their rehabilitation in permanent civilian vocations could be effected. The changeover program from 25-cycle to 60-cycle frequency was completed in the Sarnia area in 1950. Sarnia was, in fact, the first urban municipality to be changed over.

In view of the greatly increased demands for power anticipated in the Sarnia district, Ontario Hydro is doubling the capacity of its Sarnia and St. Clair Transformer Stations serving both the Sarnia municipal Hydro commission and its own direct customers in "Chemical Valley" and Point Edward.

The present Sarnia Hydro-Electric Commission consists of James C. Barr, Chairman; F. J. Maher, Vice-Chairman. John T. Barnes and D. P. Herring, P. Eng., Commissioners; and Wm. C. Nelson, Mayor of Sarnia, ex-officio Commissioner. Mr. Barr has been associated with Hydro since 1927, while the Hydro service records of both Mayor Nelson and Mr. Barnes extend back to 1940. The Manager of the commission is Charles S. Phelps, P. Eng., and the Secretary-Treasurer, H. A. Luckins.

### Georgian Bay Meeting

At a recent meeting of the Executive of Georgian Bay O.M.E.A. in Barrie, it was announced that the annual meeting of this district organization would be held at Collingwood, September 8 and 9.



NEW nylon intermediates plant of Canadian Industries Limited at Maitland, Ont., is rapidly taking shape with a construction force of 2,100 at work. The plant, which will employ about 550, will begin partial production during July.



—C.I.L. Photo



# All-Canadian Product

**New C-I-L Plant at Maitland, Ontario, Using More Power Than City of Brockville Will Produce Two Basic Chemicals Required in Manufacture of Nylon Yarn and Staple Fibre**

**C**ONSTRUCTION of a plant to manufacture the basic chemicals used in making nylon is well underway on a 1,500-acre site on the St. Lawrence River between Brockville and Prescott, Ont.

To be known as Maitland Works, it is by far the largest single project yet undertaken by Canadian Industries Limited, and one of the largest and most complex in the story of the Canadian chemical industry to date.

The plant, construction of which began in the fall of 1951, is scheduled for completion by next fall. First production is expected to begin about mid-July.

When in full operation, it will make Canada self-sufficient in the two basic chemicals used in the manufacture of nylon yarn and staple fibre instead of dependent upon imports of these two chemicals from the United States.

Operation of the new plant will employ about 550 persons, one-third of them engineers and highly-skilled technicians. It will consume about 60,000 tons of coal annually and almost 10,000 gallons of water a minute. C-I-L officials estimate that it will use approximately one and a half times as much electricity as the

*(Continued on page 12)*



—C.I.L. Photo

**BOILER-HOUSE** includes equipment for heating and other purposes as well as air-compressors. Plant itself will use one and one-half times as much power as neighboring City of Brockville, supplied by Ontario Hydro.





AT THE nearby Kingston Works, C-I-L turns out thousands of pounds of nylon yarn a month in addition to staple fibre. Hydro power also plays a vital role at this plant, operating complicated, high-speed machinery, and permitting closest control over intricate spinning, twisting and winding processes.

end-to-end manner, much like a chain of paper clips.

In 1930, while investigating this new discovery, one of the chemists made a startling observation. He removed a sample of a long-chain polymer from the chemical still in which it had been made and noted that the molten sample could be stretched like warm taffy candy. Even after it had cooled, it still could be stretched to three or four times its original length.

More important, he saw that when it was so drawn it became much stronger and elastic—a development never before seen in such substance. The chemists wondered whether it might not make an excellent textile yarn.

For seven years, chemists, engineers, and market analysts—at one time or another there were 230 technicians employed—worked on the problem, devoting millions of dollars toward its solution.

## All-Canadian Product (continued)

neighboring City of Brockville with its population of some 13,000 people.

### Will Resemble Refinery

The plant itself will resemble an oil refinery in appearance. Its nerve centres will be two small control rooms, the wall of which will contain huge instrument panels, similar to the master control room of a radio station or of a large power plant.

Decision to build the plant, the company states, was in line with C-I-L's policy of importing materials only until such time as the domestic market has been developed and construction of manufacturing units in Canada becomes economically sound.

It also is another step in a series to make nylon an all-Canadian product.

The story of nylon—the word is a generic term referring to any one of a large group of chemical compounds—goes back to 1928 when a group of research chemists of the Du Pont Company in the United States, led by Dr. W. H. Carothers, undertook a program

of what they called “fundamental research.” Their work was not aimed at the creation of new chemical products or the improvement of existing ones. Instead, they hoped to discover new and fundamental facts about chemical materials and processes which would add to the basic knowledge necessary to all chemical advancement.

Dr. Carothers and his assistants were particularly curious about how and why certain of the molecules, of which all things are made, often unite to form “giant” molecules. Many of these giant molecules exist in nature and are the principal building blocks of such well-known substances as cotton, rubber, silk and resins.

### Linear Polymer

One of the facts they uncovered after months of work was that they could make in the laboratory a new type of giant molecule which they called a linear polymer. It differed from those known to exist in nature in that it was made up of molecules joined together in an orderly

### Tooth Brush Bristles

Finally, they were able to produce greatly improved polymers. These appeared on the market in 1938 as bristles for tooth brushes and proved superior in many ways to natural bristles. Then, with the co-operation of the hosiery industry, a yarn suitable for women's stockings was developed. On May 15, 1940, the first nylon stockings went on sale.

Nylon proved to be stronger, tougher and more durable than any natural fibre. It was found to resist abrasion, damage by moths or mildew, had great dimensional stability, and high wet strength, and was easy to launder, quick to dry, and light to wear or carry.

As its unique qualities became better known, nylon, as a yarn, staple fibre and plastic, was quickly adopted in other fields. Today, it is used in hundreds of products found in the home and the factory, ranging from baby garments and stockings to ropes for rope-driven machinery.

Construction of a Canadian nylon plant began in 1940, and the first nylon filament made in Canada came off the machines at C.I.L.'s plant at Kingston



Ont., on June 26, 1942. Until then all nylon filament had been imported from the United States.

The first nylon produced at Kingston went to the armed services with only a small proportion allotted for civilian needs. By the end of the war, the plant was producing 100,000 pounds a month, and since then a series of plant expansions have increased production by several times that figure. In addition to filament yarn, Kingston turns out staple fibre, a form of nylon which is having a far-reaching effect on the textile and other industries.

### Complicated Process

The manufacture of nylon is a complicated chemical process. Basically, the fibre is derived from coal, air and water, beginning with the production of benzene from coal tar, nitrogen and oxygen from the air and hydrogen from water. Alternatively, a petroleum product can be used to replace benzene.

Combined, and subjected under exacting control to a succession of chemical reactions, the resulting product is nylon salt which is soluble in water, the form in which it usually is transported or stored. (The new plant at Maitland will manufacture the two basic chemicals used to obtain this nylon salt—adipic acid and hexamethylene diamine.)

The second major step is to convert the nylon salt from a liquid to a solid. The salt solution is pumped from storage tanks to an evaporator, and thence to a giant pressure cooker called an autoclave. Here, the molecules of the nylon salt are joined end-to-end to form the very large ones called superpolymers. These help to give nylon its toughness and elasticity.

The molten polymer mass then is extruded through a narrow slit on to a big polished drum where the white ribbon of nylon is solidified and cooled by water sprays which harden it as it moves along to the chipper, a rotary cutter that chops the nylon ribbon into hard, ivory-like flakes about the size of soap flakes.

The third major operation begins when the nylon flakes are dumped into a hopper, melted and the molten nylon is pumped through the tiny holes of a small metal plate called a spinneret.

### Solidifies as Filament

As the molten nylon is extruded from each hole, it solidifies as a filament. These filaments are twisted together to form the yarn, known as multifilament. The fila-

ments then are wound on bobbins, completing the operation known as spinning.

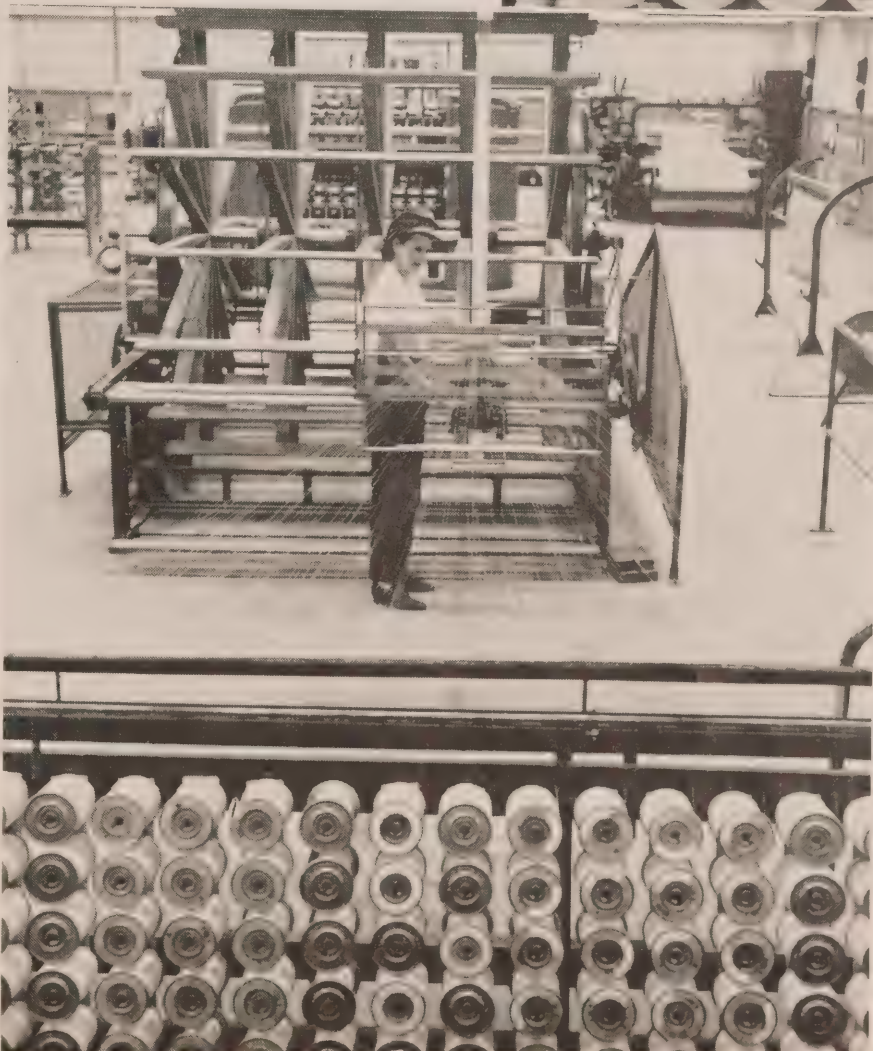
The yarn is next stretched about four times its original length and twisted by running it through a draw-twisting machine. This operation gives the yarn the strength, elasticity, translucence, and lustre for which it is noted.

After various additional twisting and sizing operations, most of which are normal textile processes, the nylon undergoes exacting inspection before being packaged for shipping.

Staple fibre is produced in the same

manner as filament yarn, but during the finishing operations the fibre is processed into individual short-length filaments and crimped for spinning.

C-I-L's new Maitland plant will make Canada self-sufficient in two basic chemicals used in manufacture of nylon yarn shown on spools in Kingston plant, right. Below, in foreground, a warping machine is operating.





# PLANE TALK

## Unusual Stone-Finishing Machine Altered for 60-cycle Operation at Kitchener

by FRANK C. WOOD



FRANCIS E. Tremaine, Superior Stone Company partner, applies delicate finishing touches to beautiful wall plaque with an electrically-operated chisel. Looking on is Elvin Shantz.

ONTARIO HYDRO frequency standardization crews established a new record recently in supplying 60-cycle power to an industrial customer.

When the higher frequency became available in a section of Kitchener, which includes the premises of the Superior Stone Company, it was found necessary to standardize the plant on comparatively short notice.

The reasons for speed included the necessity of completing the job before the construction industry (which this company serves principally) stepped up its tempo for the spring and summer and of relieving the load on Kitchener's 25-cycle system.

Hydro crews immediately swung into action and within a few days had completed inventory of the plant equipment. The new 60-cycle replacement material arrived in Kitchener five weeks later, and six days afterwards changeover of the plant commenced. In another 72 hours 25 cycle power was cut off and 60-cycle was switched on. This set something of a record in the standardization program, marking the first time that the power supply to an industrial customer had been altered 51 days after completion of inventory.

### Unique Equipment

A unique piece of equipment encountered during this operation was a stone-planing machine, powered by four motors ranging from 3 to 50 horsepower. This machine is used for planing and smoothing synthetic stone.

A 2,200-pound cast-iron counterbalance was used on this planer, but because 60 cycle motors are smaller and lighter than 25-cycle types, it was necessary to decrease the weight of the counterbalance.

Fortunately there was a plant nearby with equipment large enough to handle modification of the counterbalance which was 20½ inches in diameter and 2 inches long. The counterbalance was





◀ **OPERATOR Harry Teet** gives reducing treatment to stone-planer's 2,200-lb. counterbalance at the Galt plant of the Canadian Machinery Company Ltd. (Photo by Gordon Hamilton, of Galt).

accordingly shipped to the Canadian Machinery Corporation Ltd., at Galt where its length was reduced to 17½ inches, and its weight by several hundred pounds.

Other equipment changed over at this plant included benchsaw, bandsaw, jointer, mixer, air circulator, stone polisher, exhaust blower and fan, and an air compressor.

#### Established in 1925

The Superior Stone Company was established in 1925 by Carl Heuman, who brought from Germany a new stone processing treatment using a mixture of crushed Dolomite, of various sizes and grades, and cement, to manufacture building and other types of stone. The company, at present, is owned by Elvin Shantz, Francis E. Tremaine and A. M. Weber.

Building stone manufactured by this unique Kitchener industry was used recently to resurface the Head Office of the Waterloo Mutual Fire Company office building. The plant is also fabricating stonework for a new wing at St. Catharine's General Hospital.

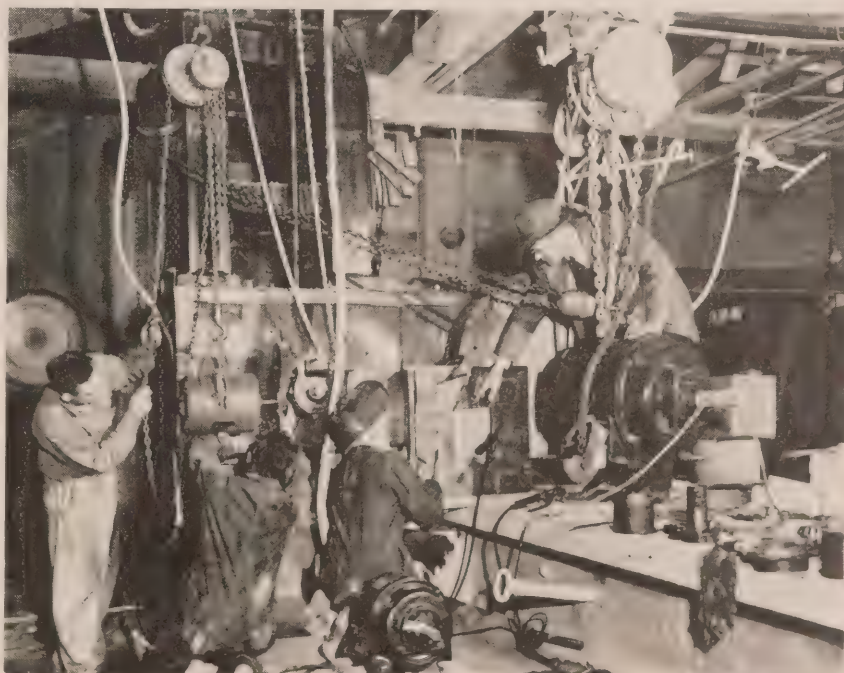
But Superior Stone's operations are not confined to utilitarian production alone.

Recently they were entrusted with the moulding of a beautiful plaque depicting Christ blessing the little children. Model for this plaque was made by Mrs. Helen Robertson of Niagara Falls. It weighs some two and one-half tons and ultimately will grace the walls of St. Denis Separate School, St. Catharines.

Delicate finishing touches to the plaque were applied by Francis E. Tremaine with sculptor's electrically-powered pneumatic chisels.



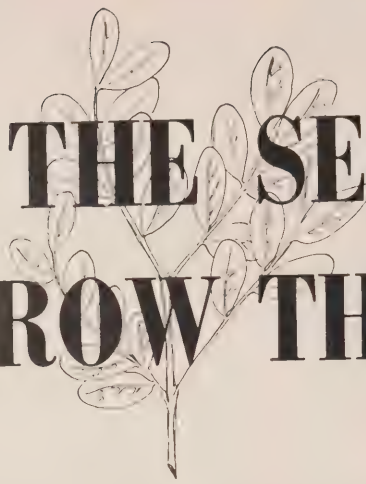
**CREW Supervisor Don Schlotzhauer and Matthew Nessner** mark off 2,200-lb. counterbalance to indicate portion to be removed for 60-cycle operation.



**RUS Brubacher, Matthew Nessner, Ron McCourt, and Supervisor Don Schlotzhauer** (left to right), prepare stone-planing machine for fitting 60-cycle motors during changeover operations.



# TODAY THE SEEDLINGS TOMORROW THE TREES



**O**NTARIO HYDRO supplied 9,000 seedlings for a mass planting project which took place recently in Toronto's Don River Valley. The planting was completed in about six hours as 100 Danforth Technical School students swarmed over the banks of the valley about a mile north of O'Connor Drive. Third partner in the operation was the Don Valley Conservation Authority who did most of the organizing and supplied technical advice to the students.

Hydro's interest in this operation is very much in line with its program of soil conservation and the improvement of tower surroundings, especially in municipal areas at numerous points in Ontario. Similar steps are being formulated to prevent erosion in other areas where Hydro facilities are located near river banks.

## Conservation Classes

The boys and girls who did the spade work represented the top students in conservation classes from 12 Danforth "Tech" First Forms. The outing gave them a chance to put into practice some of the theory they have been studying in the classrooms. The trees—white cedar, black locust and jackpine—were planted at six-foot intervals under the supervision of Eldon B. Comfort and Gordon A. Stewart, teachers at Danforth Tech.

Co-ordinating the operation was G. V. Kaye, Secretary-Treasurer of the Don Valley Conservation Authority and a member of the Ontario Department of

◀ **DANFORTH** Technical School (Toronto) students mount the east slope of the Don Valley planting hundreds of seedlings as they climb. Scars along the face of the opposite slope, and river banks, clearly indicate the importance and wisdom of such measures as seedling-planting to check erosion of soil.





▲ **SCHOOL** was never like this! Part of group of 100 students, chosen on the basis of their standing in 12 Grade Nine conservation classes at Danforth "Tech," plant trees supplied by Hydro. They worked in groups of eight under a captain.

Planning and Development. Following the morning's work, he became the most popular man on the scene as he handed out ice-cream and cokes, treats donated by Hydro.

Ontario Hydro Foresters Fred Corin, Head Office, and Don Chrisman, Toronto Region, suggested locations for the trees. Many of them were planted in the shadow of the 230,000-volt Hydro line leading to Leaside. The towers span the valley at this point, and most of the trees were planted on the flats and on either slope.

Commenting on Hydro's policy of improving tower surroundings, Chairman Robert H. Saunders said:

"This program was initiated last September with plantings around the towers at the junction of Dundas and Bloor Streets in Toronto. The following month, 200 flowering shrubs and trees were placed on the east side of the Don Mills Road between Lansing cut-off and Steeles Avenue."

At Chippawa and DeCew Falls a novel method of retarding soil erosion has been employed by Hydro. Willow logs, noted for their quick growth, were planted along river banks. After months, the seemingly dead logs, measuring upwards of six feet, suddenly sprouted and grew. Within two years, the roots knit the soil together, checking erosion.—by *Norman Shannon.*



▲ **TREE-PLANTING** has its ascetic side too! In addition to promoting soil conservation, trees are used effectively by Hydro to improve the appearance of tower surroundings.

◀ **STANDING** in a jungle of bicycles, this group represents the three partners in the tree-planting project. Left to right—Gordon A. Stewart, Danforth Technical School; George V. Kaye, Don Valley Conservation Authority; Don Chrisman, Ontario Hydro Forestry Department (Toronto Region), and Eldon B. Comfort, also of Danforth "Tech," supervised planting of tree seedlings.





PHOTOS on this page show "before and after" effects of street-lighting modernization, using (lower photo) 18,600 lumens lamp on a street 84 feet wide. Mounting height, 32 feet.

# CHALLENGE FOR ENGINEERS

**Illuminating Experts Must Make Roadways  
as Safe by Night as They Are in Daylight**



(Article based on address by Stuart R. Williams, Vice-President, Street Lighting, Holophane Company, Inc., Newark, Ohio at recent annual A.M.E.U. Convention.)



**STUART R. WILLIAMS**

**M**ORE THAN 52,000,000 motor vehicles travelled 465,000,000,000 miles in the United States last year. This is an all-time record, an achievement worth boasting about, were it not for an allied record. All those cars, trucks, and busses rolling all those miles killed 37,100 persons and injured nearly two million in 1951. (Source: Travellers Insurance Company.)

Statements of fact like these are first a shock. Then they become a challenge!

Analysis of the data available indicates that over half of these deaths and injuries occurred at night, when only one-third of the daytime vehicles are on the roads. The death rate per million vehicle miles is nearly three times as much at night as the daytime rate.

## Sound Advice

Conditions at night generally are exactly the same as those obtained by day. The only difference is darkness and when you cannot see, you are not safe. The slogan "Slow down at Sundown" is sound advice, but people do not always accept sound advice, and that seems to be particularly true of automobile drivers. The lighting engineer can contribute and does contribute by attempting to provide seeing conditions or visibility comparable to that provided by nature in the daytime. We cannot stop excessive speeds, but we can and do provide an additional measure of safety for those addicted to excessive speeds.

Much progress has been made in the development of more efficient light sources, more effective luminaires and more economical methods of system design and installation. The cost of providing roadway safety lighting not only is justified but the trend of cost per mile of modern lighting is downward when all other costs tend to climb. For this we can thank the progress made by public utility engineers and management and the manufacturers' design engineers who are backing them up.

In considering the factors affecting visibility as well as the association and relationship of one to another, it is the problem of the design engineer to integrate acceptably these many factors under conditions which give him control over only five elements of design—the amount of power used, the height of the lighting unit above the area, the arrangement or positioning of these lighting units in relation to the area, the light distribution pattern, and the spacing of the luminaires or the number of luminaires used per unit length of area. Progress has been made to strongly emphasize factors known to be helpful in producing visibility or revealing power, and to suppress factors adversely affecting revealing power. The application of prismatic reflectors and refractors for the accurate control of light distribution is of vital importance.

## Engineer's Responsibility

It is the responsibility of the illuminating engineer to make roadways as safe by night as they are by day. The trend is toward more illumination at today's costs or less. The illuminating engineer has made progress both in lamp design for more efficient generation of light and in luminaire design for more efficient use of light. This progress will continue, and the public's interest will be well served.

Several publications dealing with various aspects of street lighting are available today. One of these: "Standard American Practice for

(Continued on page 23)



# FOTO-NEWS



**PRACTICAL EDUCATION**—Graduating classes of Chatham Vocational School get more than “book larnin’,” particularly in their final year at that fine secondary institution. A group of the pupils taking the electrical course had the opportunity of seeing how Chatham’s Hydro system works when they visited the local commission’s first 60-cycle substation recently. In the photo on the right Clayton Leach (pointing), Chief Electrical Engineer, and R. S. Reynolds, Manager, Chatham P.U.C., described the operations of the plant. The photo, below, was taken at the front entrance of Ontario Hydro’s Head Office in Toronto which the students visited during a tour of Southern Ontario points of interest, including Queen’s University, Kingston, as well as the Commission’s generating plants at Chenaux and Niagara Falls. Here they were addressed by Chairman Robert H. Saunders, shown in the photo below flanked on his right by Tom Howard, Chairman of Chatham P.U.C., instructor of the electricity course at C.V.S., and William Fawcett, science teacher, on the left.







**QUARTER-CENTURY MEMBER**— Highlight of the annual dinner party for the staff of Stratford Public Utility Commission, attended by approximately 150, was the presentation of an engraved watch and rose corsage to Miss Clara Sproul by Commissioner Norman Siegel, right, with General Manager A. B. Manson (left), smiling his approval. Miss Sproul joined the Stratford staff on July 2, 1928, and has served as Cashier since that date. Birthday gifts were also presented to three members of the staff, Harold Duggan, new Hydro Shop Manager, Thomas Pigeon, lineman, and Jack Pearce, sub-station operator. All three were celebrating their birthdays at the time and the presentation of a pipe was made to each of them by E. A. Washburn, Assistant General Manager. Birthday cakes were also presented to the celebrants by Misses Shirley Schmidt, Thelma Gaul and Georgina Ellam.

**ENGINEER HONORED**—Associated with Ontario Hydro for the past 42 years, John H. Caster, centre, was honored recently by the Commission and his colleagues on the eve of his retirement. Some 70 of his friends were present at the party in his honor during which Second Vice-Chairman W. Ross Strike is shown reading an address in the form of a poem with H. H. Leemin, Director of Frequency (right), smiling agreement with the sentiments of the literary masterpiece. Mr. Caster graduated Electrical Engineering in 1907 from the University of Toronto. He joined Ontario Hydro on November 19, 1911. Serving with the Municipal Department, his area included Kitchener, Galt, Preston, Stratford, St. Marys, Goderich and adjoining rural areas. In 1931 he transferred to the Niagara Peninsula area, including Niagara Falls, Welland, St. Catharines, Beamsville and Grimsby. In 1948 he joined the Consumer Service Division transferring in 1949 to the newly-formed Frequency Standardization Division. In the early days of Ontario Hydro, Mr. Caster spent a good deal of time travelling around the province with the late Sir Adam Beck and spreading the Hydro ideal.







**MEMORABLE MILESTONE**—Ontario Hydro crews in the Peterborough Rural Operating Area, under Manager R. H. Aspinall, recently had the pleasure of making a special contribution to the celebration of the 100th birthday of a new Hydro customer. A few days before William O'Brien of Downeyville, east of Lindsay, passed his century milestone, they completed the job of erecting a new rural Hydro line and lights were turned on for the first time in Mr. O'Brien's farm home. Still in the best of health, the sprightly centenarian, who is said to be oldest automobile driver in Canada, is shown, during the big family birthday party in his honor, with two granddaughters, Mrs. Walter Williamson, Hawkesbury, and Mrs. Harold (Shag) Shaughnessy, Ottawa, and the lamp which he has used for many years, but which is now being relegated to the top shelf.

**CLOSE GAS PLANT**—Operating in Stratford since 1875, the city gas plant under the jurisdiction of the local public utility commission, had a "closed" sign tacked on its door recently when gas service to local customers was formally terminated. Decision to close the plant was reached by an agreement between the Stratford Commission and City Council last fall after operation of the gas system had shown a deficit over several seasons. The plant has been operated by the Stratford utility since 1926. Watching Joseph Richardson, Superintendent, with 28 years' service to his credit, affix the "closed" sign are Stratford Commission representatives including Commissioner Norman H. Siegel (extreme left), Chairman W. F. Nickel, Commissioner A. R. Moore, Assistant General Manager E. A. Washburn, and General Manager A. B. Manson.



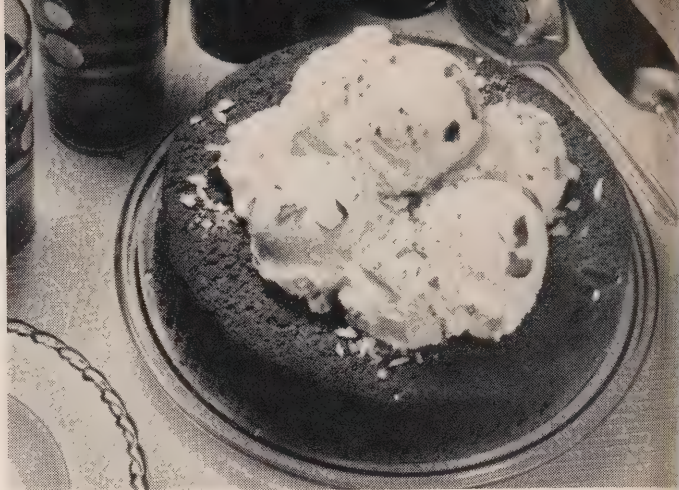


# HYDRO

## Home Forum

by EDITHEMMA DIGHTON

Hydro Home Economist



While some folks may think of holidays as a time to be lazy, it is still important to consider health and safety measures for yourself and your family.

\* \* \*

Boil drinking water at summer cottages. Use soapy water for dishes and give them a vigorous washing. This is more important than drying.

\* \* \*

Keep milk refrigerated. Pour milk into thermos for picnics, or place extra caps on bottles and keep in a covered pail surrounded with cold water. The use of powdered or canned milk is favored by many folks.

\* \* \*

Don't forget to purchase insect repellent and read the directions on the bottle. There'll be black flies near running water, and mosquitos near stagnant water or swamps.

\* \* \*

Be sure all dishes and food are well-covered, or put away before spraying the room with insect poison.

\* \* \*

Meat should never be left at room temperature longer than four hours. Cook minced or sliced raw meats if meat is to be kept longer than 4 or 5 days in a refrigerator.

\* \* \*

Using trays in the kitchen is a good habit. When hot dishes of food are being taken from oven to table, or when filled tumblers are used, carry them on a tray; when hot dishes are being set outside to cool, leave them on a tray. Notice how safely the silverware and china is transferred from cupboards to dining table when a tray is used.

\* \* \*

Do not leave silverware in dishes as they cause dishes to tip.

Think of safety measures when buying equipment such as oven mitts. There are asbestos-lined types and very thin cotton ones. Naturally the asbestos type are better.

\* \* \*

To avoid many hazards take time to find and use the right implement or utensil for opening cans, lifting tacks, straining food, etc.

\* \* \*

If you perspire readily use more salt on food during hot weather.

\* \* \*

Be sure to wash all fresh fruit and vegetables under running water. Children should be reminded not to pick up fruit left on a table as it may have been contaminated by flies.

### BANANA ICE CREAM

- 1 cup mashed ripe bananas (2 to 3 bananas)
- 2 teaspoons lemon juice
- $\frac{1}{4}$  cup brown sugar
- $\frac{1}{2}$  teaspoon salt
- $\frac{1}{2}$  cup milk
- 2 eggs, separated
- 1 cup heavy cream
- 1 teaspoon vanilla
- 5 maraschino cherries

Mix bananas and lemon juice together. Add sugar, salt and milk, stirring until mixed. Beat egg whites until stiff. Whip cream until thickened but not stiff. Beat egg yolks until thick. Combine banana mixture, egg whites, egg yolks, cream, vanilla and cut maraschino cherries. Turn into refrigerator tray and freeze, stirring every 30 minutes until mixture holds its shape. Freeze until firm. Serves 8.

To pasteurize milk on the farm bring it to a boil three times over high heat setting it off each time after it begins to boil. Then chill milk in a pan surrounded by ice cubes.

\* \* \*

Have a first-aid kit in the car as well as one in the home.

\* \* \*

Small pieces of broken glass and chips should be picked up using a wet cloth—then the cloth should be wrapped and placed in garbage pail.

\* \* \*

Working with inadequate or glaring light in a poorly-ventilated room causes fatigue and increases danger of accident. You should always see what you are doing and work where there is cross ventilation.

\* \* \*

Be cautious about lifting heavy objects. Bend your knees, keeping your back straight and straighten knees as you lift.

\* \* \*

In carrying hot liquids be careful to see that the container is not too full and that you have a clear path before you.

\* \* \*

Take frequent short rest periods during laborious jobs.

\* \* \*

Eat meals at regular hours, and cut down on hard-to-digest foods during the summer.

\* \* \*

Organized housework is as important for health as it is for reasons of safety. As a psychologist has said, "things do happen in a vacuum—they happen for a reason. And usually the reason is to be found in our desires, thoughts and needs. Few of us tire because our muscles are 'overloaded,' so we must look for the reasons for fatigue other than the purely physical ones.



## Challenge For Engineers

(Continued from page 18)

Street and Highway Lighting" was originally sponsored by the Illuminating Engineering Society. Another booklet "Street Lighting—A Guide to Good Practice," outlines the fundamental requirements of modern street lighting systems in a clear, concise manner. The problem of foliage interference in the efficiency of street lighting installations is covered in "The Correlation of Street Lighting and Tree Management." This unique booklet discusses types of trees, planting methods, pruning, etcetera, required to provide good outdoor lighting results.

(Since reference to the above publications resulted in such widespread interest, as evidenced by the number and variety of questions regarding the articles, the Holophane Company is endeavouring to acquire a supply of these booklets for those who may wish to have copies.)

### Name Superintendent Of Durham P.U.C.

David Rolston was recently appointed Superintendent of Durham Public Utilities Commission. He succeeds R. E. Flewelling who has resigned.



D. ROLSTON

Mr. Rolston who was born in 1920 and educated at Shelburne, was associated with Ontario Hydro as a senior lineman for approximately eight years, and latterly in connection with the surveying of new rural lines. After leaving the Commission, he was engaged in rebuilding the municipal Hydro systems of Holstein, Grand Valley, Orangeville, Shelburne and Flesherton.

An enthusiastic sportsman, Mr. Rolston has played hockey for the past 12 years. Married, he is the father of one daughter.

### P.U.C. 25-year Club Welcomes New Member

Port Arthur Public Utilities Commission's Quarter Century Club recently welcomed a new member, Thomas Nash, journeyman lineman, and returned Gordon (Phat) Wilson for his third term as Club President during the annual banquet and meeting in the Prince Arthur Hotel.

## Urges Greater Interest In A.P.E.O. Work



J. H. SMITH

THE need for greater interest and enthusiasm by Ottawa engineers in the work and aims of the Association of Professional Engineers of Ontario, was the main point of an address by Association President J. Herbert Smith, P.Eng., of Toronto, in the Capital City recently.

Speaking before some 600 members of the engineering profession in the Ottawa district, Mr. Smith said the need was indicated by a growing curiosity as to whether engineers in the pay of the federal government were required to join the Association in order to practice. He added, it was each engineer's duty to ask himself whether failure to register with the association was a matter of guilt, not before a court of law, but before a court of his fellow engineers.

By the very nature of his work, the engineer has always been lost in the

shadow of his own creation, hidden from the public by the grandeur of the completed project. It was only through the work of the association, with the co-operation of every member, that the individual engineer today "is more than just a voice in the wilderness," Mr. Smith stated.

In describing the nature of the various committees that make up the Association, he said it had taken 30 years of effort and the spending of nearly \$34-million collected in membership fees to bring the profession to its present high level of public recognition. He also made reference to the formation of a new standing committee known as the "professional status committee" which was being established to institute and provide means for increasing the knowledge and skills of the professional engineer, advance their status and well-being, and help maintain a high standard of professional ethics.

He admitted it was the effort and conduct of the individual engineer that produced the great contribution to Canada's expanding economy, but it was only through the voice of the association as a whole that the facts could be told to the public.

The individual engineer, though seldom conscious of it, was dealing with public interest at every turn. Every problem he handled comes down ultimately to three questions: Will it work? Will it pay? Is it safe? The latter involved a universal and unceasing public obligation which no employer could ask the engineer to set aside, declared Mr. Smith.

The A.P.E.O. has a membership of nearly 14,000 including registered professional engineers, graduates and undergraduates.



SOME 600 professional engineers in the Ottawa district were present at the meeting, described as one of the best attended engineering gatherings ever held in the capital.



# 4<sup>th</sup> City



**T**HE imposing job of standardizing the City of Windsor, which was officially launched on January 3, 1952, was virtually completed recently when another switch was closed at sub-station No. 27.

This "cutover No. 335" brought the higher frequency to the premises of the last 114 domestic and 7 commercial customers in the city.

The task of bringing 60-cycle power to Windsor has been a tremendous one, for with a population in excess of 125,000 it is the fourth city in Hydro's Southern Ontario 25-cycle system to be changed over.

## 35,217 Customers

"Operation Changeover" in Western Ontario's Automotive City affected some 30,344 domestic, 4,197 commercial and 676 power customers, while items changed over totalled approximately 103,789; domestic; 41,964, commercial; and 41,350 power, adding up to a grand total of 187,151 items for 35,217 customers of all classes.

For domestic consumers it was necessary to standardize tremendous number of appliances in everyday use, including some 27,250 washing machines, 21,360 refrigerators, and 13,470 record players. In addition, approximately 20,200 clocks and 17,250 fans were either standardized or exchanged for new 60-cycle models at the three depots which were established at convenient locations in the city as the Windsor program progressed.

Standardization of Windsor industrial

**TICKLISH** job during Windsor operations was changeover of electric sign on the international Ambassador Bridge, 512 feet above the Detroit River. Sixteen, 30-lb. transformers were carried up a ladder to the site.



# MANY UNIQUE PROBLEMS AND AMUSING INCIDENTS

## FEATURED CHANGEOVER OPERATIONS AT WINDSOR

as, itself, an extensive project, and in the three plants of the Chrysler Corporation it was necessary to alter more than 1,000 pieces of frequency-sensitive equipment.

### Spectacular Task

Operations in Windsor gave Hydro technicians their most spectacular task since the overall program commenced over three and a half years ago. This consisted of changing the sign, 512 feet above river level, on the internationally famous Ambassador Windsor-Detroit bridge.

The only way of getting sixteen 30-lb. transformers, one for each letter of the sign, up the 512 feet was by carrying them up a ladder. The letters are six feet high and are part of a sign 25 feet high. The timing device at 186 feet had also to be changed to synchronize it with the sign on the American side of the bridge.

### 7½ Ton Transformers

Another interesting assignment concerned the Windsor-Detroit Tunnel. This necessitated installation of three new transformers, each weighing 7½ tons, in the tunnel ventilator building on London Street East. These ventilators are giant exhaust fans which suck out the polluted air from the tunnel and replace it with fresh air.

The transformers step down the power from 4,000 to 2,300 volts, and Hydro

engineers rated their installation a tricky operation because the heavy transformers had to be hoisted to the fourth floor.

Among the outstanding equipment standardized were the 1,500-ton clearing presses at the Kelsey Wheel Co. There are few presses in Ontario as large as these giants, which are easily the biggest the Commission has had to handle (See *Ontario Hydro News*, May 1953).

### Oxygen Extractors

Equipment encountered at the plant of the Imperial Oxygen Co. was unique in that it extracts oxygen from the Windsor atmosphere, and packs it in cylinders ready for shipment.

On the domestic front, customers showed ingenuity in putting electric motors to novel uses, one powering a "thumper door bell" for a deaf housewife, and another being used to raise and lower a clothesline.

In the medical field was found a motor which circulates water at the Canadian Red Cross Society's pool, used for the therapeutic treatment of patients suffering from polio, cerebral palsy, and arthritis.

### Aid to Patients

At the same centre is an exercycle. In stead of the patients pushing the pedals around, these are driven by a motor. In this way, patients' limbs are slowly carried around in a pedalling movement, the

treatment helping sufferers regain normal use of their legs.

Because of the opportunities Windsor offers, it attracts numerous new Canadians, many of whom have not been in the country long enough to become fluent in English. For this reason Hydro inventory crews found it necessary to carry questionnaire cards concerning customer frequency-sensitive equipment printed in Italian, Polish, Ukrainian, French, Hungarian and Dutch.

To handle the exchange or standardization of more than 20,000 clocks and 6,000 fans for domestic customers two clock and fan depots were set up, while in addition a mobile depot was located at convenient points.

### Amusing Incident

An amusing incident during the early stages of the program occurred when radio-equipped changeover cars in Windsor received orders in a rich Southern drawl to proceed to points in Louisiana oilfields, 1,500 miles from Windsor. The mystery was cleared up when Hydro officials discovered that the high frequency sets used in the cars were picking up instructions broadcast by a dispatcher of the Freeport Sulphur Co. to its drivers in Shreveport, La. Receiving equipment in Hydro vehicles normally has a 25-mile range, and freak atmospheric conditions

(Continued on page 26)

**OPERATOR** Wm. Gallagher and Technician Maxwell Cheyne check performance of a compressor operated by a 50-horsepower motor, one of the unique items altered at Windsor.



**THIS** pool in the Red Cross Society's clinic at Windsor is used for the therapeutic treatment of polio, cerebral palsy and arthritic patients. Water is circulated by a 1-hp. motor.



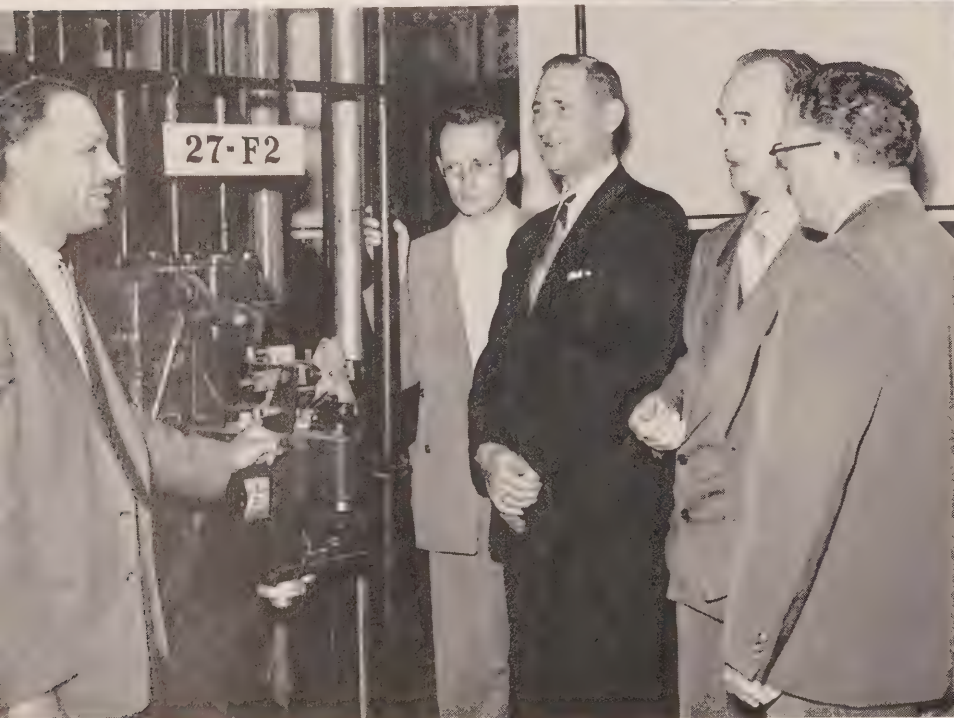
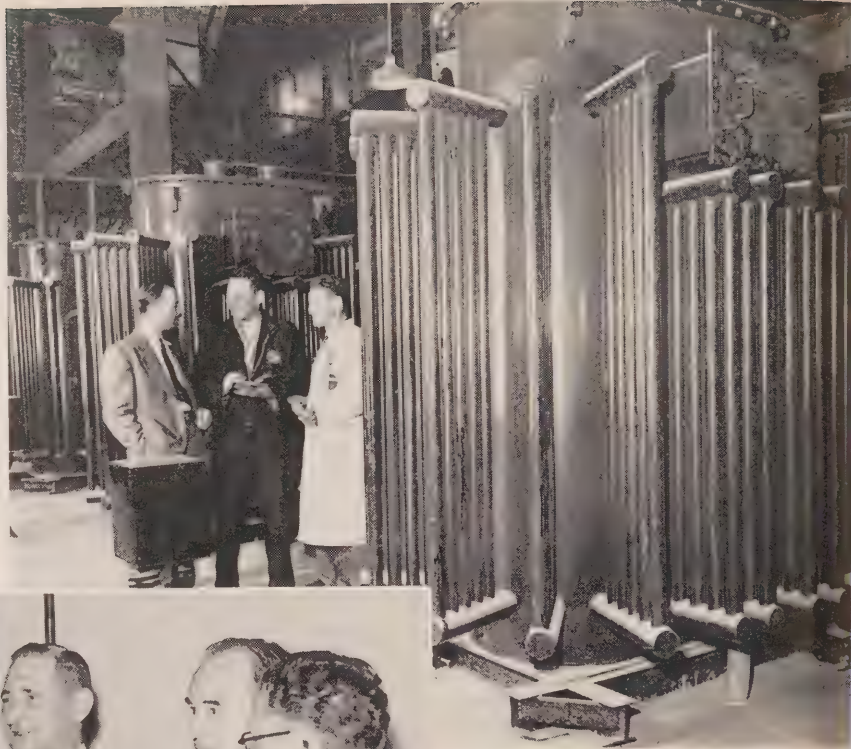


## FOURTH CITY

(Continued from page 25)

THREE, 7½-ton transformers were hoisted four floors to operate huge ventilators at 60 cycles for the famed Windsor-Detroit tunnel.

CLOSING switch to provide 60-cycle power for last group of automotive City's domestic and commercial customers is Alvin G. Brenne-  
man, Ontario Hydro F.S.D. Manager, Windsor and Essex County. Present also at final "cut" were, L to R, Canadian Comstock's Chief Conversion Supervisor; Frank Lawlor, Warren P. Bolton, Commissioner; William Anderson, Chairman, and J. E. Teckoe, Assistant General Manager, Windsor Utilities Commission.



were responsible for picking up the long distance broadcast.

Not the least important operation was the two-week task of changing over the presses, linotypes and other equipment at *The Windsor Daily Star*. Meticulous planning and close timing paid handsome dividends, and the five editions of *The Star* rolled off the presses right on time each day.

### Columnist's Tribute

Columnist W. L. Clark confessed that *Windsor Star* executives had some reser-

vations about what troubles might be in store. But in a generous tribute, he wrote that changeover engineers had everything well mapped out, and they went about conversion with a technical skill that made hard jobs look easy. With Charlie McQueen, *The Star* electrician co-operating closely, the work went through without any serious hitch. Mr. Clark specifically mentioned Hydro and Canadian Comstock engineers Dave Venutti and Jim Wright, and concluded his comments with the words: "It's been a job well done. Thanks, gentlemen."

Hydro Chairman Saunders stated: "The fact that frequency standardization has been implemented so successfully in Windsor is due, in no small measure, to the splendid co-operation and assistance Hydro has enjoyed from the Windsor Utilities Commission.

### Windsor U.C. Aid

"At all times Chairman William Anderson and his fellow commissioners, as well as General Manager J. Clark Keir, Assistant General Manager J. E. Teckoe Jr., and W. Alex Shaw, Chief Electrical Engineer, have shown complete understanding of changeover problems. On every occasion of changeover of power supply the Windsor U.C. have had the facilities ready to receive the higher frequency on time to the minute."

### Fourth City

Hydro's area frequency standardization office at 4100 Sandwich Street West, will remain open to provide information and service to customers in Windsor and Essex County on any matter connected with changeover, and to complete standardization of two industrial plants.

Windsor thus becomes the fourth city in Hydro's "25-cycle island" to have been changed over for 60-cycle operation. Sarnia having been completed in 1951 and Stratford in 1951.





## The Wrong Word

(From The Windsor Daily Star)

**A**N anonymous Windsor man has discovered—the hard way—that all the pitfalls connected with electrical transition from 25- to 60-cycle power aren't mechanical, difficult as those may be.

His initiation came recently when he had occasion to use some electrical equipment at a local church hall and was uncertain whether the structure was in a changed-over area or not. Obviously, the simplest solution was a telephone call to the church in question.

Unfortunately, the secretary at the church wasn't on hand to take the call. The telephone was answered by the reverend gentleman in charge of things spiritual, who exchanged a pleasant "Hello" with his unseen caller and then was astounded to hear the question, "Have you been converted there yet?"

It took two seconds for the impudent import of the question to sink in and another couple of seconds for the gentleman of the cloth to regain his faculties of speech. Then, in the thunderous tones usually reserved for backsliders of the congregation, he bellowed:

"That, young man, is none of your concern. It's a matter that rests entirely between myself and my Maker." And CRASH went the receiver.

At the other end of the line our hero looked blankly at the telephone. He still wasn't sure if his equipment would work or not but was perfectly certain that he had just committed the conversational *faux pas* of the year.

He would like to start a law-suit for a couple of million dollars against The Hydro-Electric Power Commission, and use the money for a poultice for his wounded feelings, but he's not too sure that he can make it stick—the lawsuit, not the poultice.

One thing is certain. From now on the word conversion will not be part of his vocabulary. Any reference to the changeover will include only the less ambiguous word—standardization.

## TELEMETER GIVES LAKE LEVEL DATA

**A**N automatic device which registers and transmits by radio the water levels of isolated northern lakes, once a day, to the nearest Hydro station has been designed and successfully installed by Ontario Hydro engineers. The instrument, known as a telemeter, is now in use at Lake Wanapitei near Sudbury, and electrical transmissions of the water level are being received daily at the R. H. Martin Dale Frequency Changer and Transformer Station, more than 10 miles distant.

This device will save a substantial amount of money by replacing the present periodic trips on foot by patrolmen to remote lakes upon which Hydro is dependent for water supply to drive the turbine-generators of power plants in the area.

Final tests on the instrument were conducted during most of last winter by transmitting the water level of Lake Wanapitei to the R. H. Martindale Station. According to the readings, the water level dropped 5.0 feet during February, March and April. The reliability of the telemeter was verified by gauge readings. Accuracy of measurement was within less than one-tenth of a foot throughout the winter.

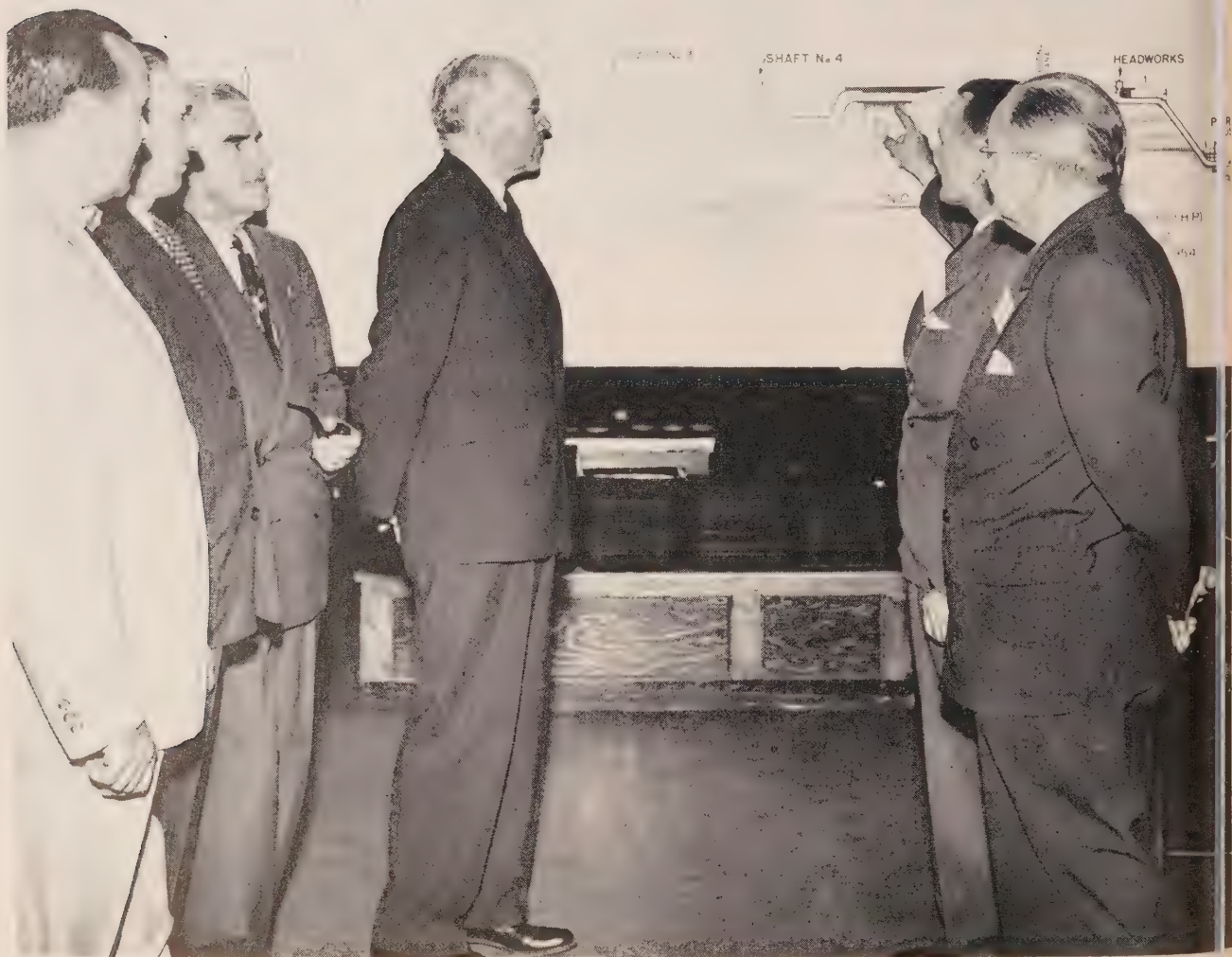
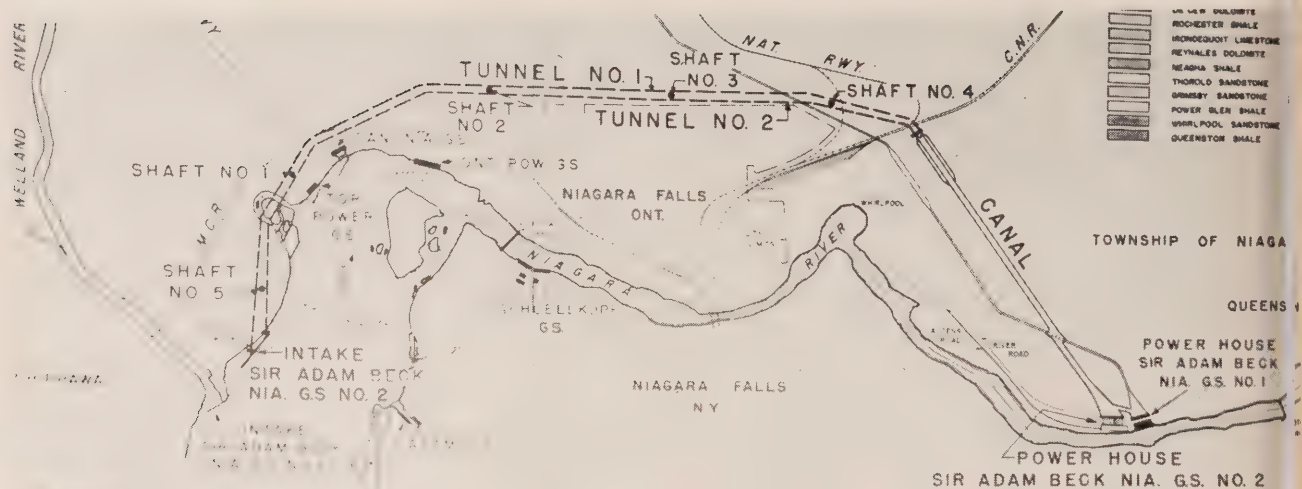
To meet the problem of ice-covered lakes, the telemeter uses a novel type pressure-actuated slide-wire which senses changes in water pressure by means of an oil line to the bottom of the lake.

Built into the instrument is a 10-watt frequency modulation radio transmitter which operates once a day for two minutes. The transmitter is started by an electrically-wound clock. Water level information is transmitted in the form of a series of long and short audio tones, representing feet and tenths of feet. The equipment is mounted in two wooden boxes set on the shore.

At the receiving station, the recorder starts automatically upon receipt of a ten-second tone from the unit, and the readings are recorded on a strip of electro-sensitive paper. It is expected the unit will operate for six months at a time from a 180 ampere-hour nickel cadmium storage battery. The battery will operate in temperatures as low as 40 degrees below zero with little loss in efficiency. The unit has a line of sight range of up to 50 miles depending on the power of the radio transmitter.



# BOARD OF TRADE





# TOUR

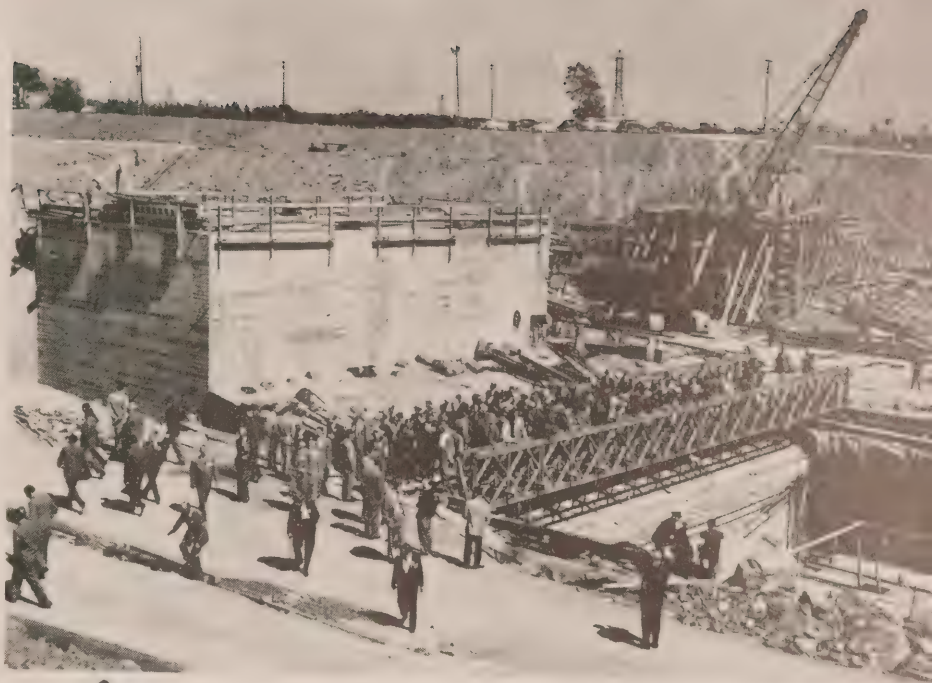
TORONTO Board of Trade members, representing a cross-section of Ontario business and industry, are among the latest of many distinguished visitors to Ontario Hydro's great new power project at Niagara Falls. Approximately 250 representatives of the Toronto Board of Trade—headed by Mr. Courtland Elliott, First Vice President—and the executive of the Greater Niagara Chamber of Commerce—including President W. J. Gebhart—inspected the massive Sir Adam Beck-Niagara Generating Station No. 2 recently.

From the cofferdam, the business leaders viewed construction at the two intake structures above the cataracts, then moved to the other end of the tunnels to inspect the exit portals and the trapezoidal section of the canal. The group also got a bird's-eye view of construction at the generating station itself from the viewing platform some 300 feet above the job.

Before the tour, W. Ross Strike, Q.C., second Vice Chairman of the Commission, and A. W. Manby, Assistant General Manager—Administration, addressed the group briefly. Mr. Strike recalled the active role played by Ontario Boards of Trade and Chambers of Commerce in the movement for public power early in the century.

Outlining the impressive growth in power requirements in the Southern Ontario System since 1945, Mr. Manby explained that this was the story behind the recurring headlines—"Hydro Floats \$50 Million Issue." It showed "the absolute necessity" of proceeding with the great power developments, "and committing ourselves to the very large expenditures involved," he said.—by Michael Young.

Heaid of a huge map, A. W. Manby, Assistant General Manager—Administration (pointing), Courtland Elliott, First Vice-President, Toronto Board of Trade, right, describes project. Group includes, left to right, W. J. Gebhart, President, Greater Niagara Chamber of Commerce; Grant Aldred, Acting Mayor, Niagara Falls; W. L. Houck, P., and W. Ross Strike, Second Vice-Chairman.



DURING their visit the Board of Trade party, shown standing on the access bridge, examined the exit portals of No. 1 (left), and No. 2 (right) Tunnels. These portals mark points where water emerges from twin, 5½-mile tunnels into 2¼-mile open canal.



"PROOF of the pudding is in the eating!" says Courtland Elliott, left foreground, who headed the party of 250 Toronto Board of Trade representatives on a tour of the Sir Adam Beck No. 2 project during which they were served luncheon in Hydro cafeteria.





## LAKEHEAD STUDENT WINS HYDRO SCHOLARSHIP

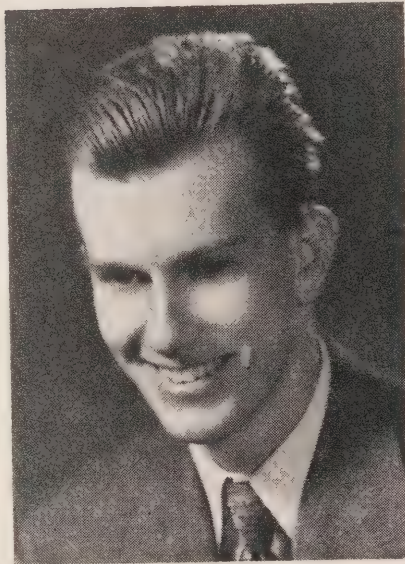
**R**ECENT convocation exercises at the Lakehead Technical Institute, Port Arthur, were featured by the formal presentation of The Hydro-Electric Power Commission of Ontario Scholarship in Applied Science to William Toivonen, a graduate of that school this year.

The presentation, on behalf of the Commission was made by D. I. Nattress, Manager of the Ontario Hydro's North-western Region which has its headquarters at Port Arthur.

Mr. Toivonen, whose father came to Canada from Finland in 1925, has completed his first year in Applied Science at the Lakehead Institute with first class honors. In recognition of his excellent academic standing, the clever young student, who plans to enter the second year in Mechanical Engineering at Queen's University, Kingston, this fall, was awarded the \$300 Ontario Hydro Scholarship.

This scholarship is one of several Ontario Hydro scholarships inaugurated last year by the Commission to encourage and assist promising engineering students.

Scholarships are now being awarded at the University of Toronto and Queen's University in each of the second, third and fourth years based on the final standings of the first, second and third year's work of a student taking an engineering course related to the Com-



WILLIAM TOIVONEN

mission's operations. In addition, a scholarship is now being awarded annually to the most worthy cadet at the Royal Military College, Kingston, entering his fourth year of the electrical engineering course. The Commission is also sponsoring a scholarship at the Ryerson Institute of Technology, Toronto, which is awarded to an undergraduate in the second year of a three-year course in the Institute's mechanical and industrial course. Names of winners of these awards will be announced in this magazine at a later date.

## Port Dover Undertaking System Improvements

Expenditure of approximately \$23,000 has been approved for utility equipment and for extensions and improvements to the electrical distribution system in Port Dover which were carried out in 1952 and are proposed for 1953, Chairman J. H. Misner announced recently.

This amount will be financed from available funds and the proceeds of a bond issue, and will permit the local commission to complete those phases of its expansion program begun last year.

## Rebuilding Tillsonburg Hydro System

Tillsonburg Public Utilities Commission will continue its program of rebuilding the local Hydro distribution system having received authorization of the Ontario Municipal Board to issue debentures totalling \$50,000. The program of re-locating poles and wires, started five years ago, will be completed in another three years, PUC Manager Stanley Webster states. The present Hydro lines are not heavy enough to carry the present load, he said.

## FIRST COMPLETE SHUTDOWN

"MAY 24—The Beck No. 1 G.S. was shut down from 7.25 to 10.07 hours to stop the flow in the canal in order to inspect the Montrose lift-gate Sills."

**B**EHIND this rather terse announcement in the Daily Summary issued by Ontario Hydro's Operations Division on May 25, 1953, lies a story of 31 years' continuous operation at the Commission's Sir Adam Beck-Niagara Generating Station No. 1 near Queenston.

The 525,000-horsepower plant which, in its earlier days enjoyed the distinction of being the largest hydro-electric development in the world, was placed in commercial operation on January 26, 1922. Since that time, until the incident reported above, this important Hydro generating plant has been in constant service supplying power to an ever-expanding section of Ontario.

There have, of course, been occasions when individual units of the big station have been taken out of service for short periods of time to permit maintenance or repair work. But May 24, 1953, marked the first time that the 10-unit plant has been shut down completely since it went into active service.

Purpose of the shutdown, as indicated was to permit inspection of the Montrose gate. The Montrose control gate is located at the point where water, diverted out of the upper Niagara River at Chipawawa, flows from the Welland River into the 8½-mile power canal leading to the Sir Adam Beck No. 1 Station.

With this plant in constant operation since 1922 it has not been possible to undertake full-scale repairs or cleaning of the canal. However, with completion of the first tunnel for Sir Adam Beck Niagara Generating Station No. 2 scheduled within the next year, plans are now underway for a major rehabilitation "job" on this canal. While work is in progress water for the older generating station will be conveyed through the newly completed tunnel and thence into the new 2¼-mile open canal which connects with the older canal a short distance upstream from the forebays of Nos. 1 and 2 plants.

Inspection of the Montrose gate was necessary to ensure that it would operate efficiently when rehabilitation work on the old canal is undertaken next year.

Sailor: "Your Dad's mad because you used his car last night? How did he leave that?"

Girl: "We hit him."





LT.-COL. A. A. KENNEDY

### Owen Sound Chairman Appointed O.M.E.A. President

A prominent citizen of Owen Sound, Lieutenant-Colonel Albert Arnett Kennedy, D.S.O., has been appointed President of the Ontario Municipal Electric Association.

Selection of Col. Kennedy to complete the unexpired term of office of the late Rufus H. Reid was announced at the conclusion of a recent meeting of the O.M.E.A. Executive in Toronto.

Born in Owen Sound on July 25, 1905, the new O.M.E.A. President was educated in that city. During World War I, Col. Kennedy served with distinction in England, Italy and Northwest Europe, commanding the Hastings and Prince Edward Regiment. He was awarded the Distinguished Service Order for gallantry in action. Since the end of the Second World War, he has been Commanding Officer of the 45th Anti-Tank Regiment in Owen Sound.

Active in civic circles, he has served as a member of the Owen Sound Public Utilities Commission for the past eight years, being Chairman this year, and is also First Vice-President of the Georgian Bay District O.M.E.A.

Married, Col. Kennedy is the father of one son and three daughters.

1st: "Old chap, didn't I borrow \$5 from you last week?"

2nd: "No, you didn't."

1st: "How careless of me. Can you tell me have it now?"

\* \* \*

Bad habits are like a comfortable bed—easy to get into but hard to get out of.

## DOUBLE CAPACITY AT PINE PORTAGE

CONSTRUCTION forces are moving into the Nipigon River district to undertake the work of doubling the capacity of Ontario Hydro's two-unit 82,300 horsepower Pine Portage Generating Station.

This program of enlargement has been designed to meet the continuous municipal and industrial load growth in Hydro's Northwestern Division, including the estimated requirements of a new plant proposed by the Caland Ore Company at Atikokan in 1954. The addition of two more generating units at the station will raise its dependable peak capacity with four units to 168,900 horsepower by early 1955.

Estimates show that with the two new units at Pine Portage, the existing power plants serving this region will meet load demands until the Spring of 1955. Because of the rapid expansion of this thriving area, it will likely be necessary to develop further resources by 1956.

If the Caland Ore Company's present plans do not materialize, a 14.5 per cent reserve—a desirable margin for the important loads of this area—will be available to the system in 1955.

In the Spring of 1952, Hydro authorized plans to construct the third unit at Pine Portage in anticipation of load increases in the Northwestern area. At the same time, provision was made to install the turbine-embedded parts and superstructure for the fourth unit.

Present plans to install the fourth unit at the same time as the third—thus avoiding the need of bringing construction forces back to the power site a second time at a later date—will save Hydro approximately \$35,000 in construction costs. Construction of the third unit is now underway and, with associated switching facilities, is scheduled for service in September, 1954. The fourth unit has been given an "in service" date of early 1955.

Load growth in the Northwestern Division is indicated in a comparison of primary peak requirements between 1951 and 1952. In 1951, an output of 213,900 kilowatts (286,800 horsepower) was required. Last year, this output advanced to 231,722 kilowatts (310,600 horsepower), an increase of 8.3 per cent, while annual energy requirements advanced by 5.3 per cent. More recently, power figures for the week ending May 10, 1953, show that

the primary peak demand in the Northwestern Division exceeded that of the same week of a year ago by 7.7 per cent. It is expected that with the present rate of increase, primary peak requirements in this area will be substantially higher during 1953.

To incorporate the fourth unit into the Northwestern Division, additional 115,000-volt transmission and switching facilities will be required. Service to the Caland organization would require a second 115,000-volt line from the Lakehead to Atikokan.

Pine Portage G.S., located on the Nipigon River, 73 air-miles northeast of Port Arthur, was officially placed in service in June, 1950. The most northerly of Hydro's Nipigon River stations, upstream from the Cameron Falls and Alexander plants, Pine Portage was designed and built by Hydro engineers and construction crews.

At peak construction on the new units this summer, the construction forces will number approximately 100 men. This small force, as compared with that of three years ago, has been made possible because the penstocks required for the third and fourth units were installed at the same time as those for the first two units in 1950.



GEORGE D. FLOYD

Ontario Hydro's Director of Planning who has been elected Vice-President of the American Institute of Electrical Engineers. He will represent the Canadian District for two years, starting August 1 this year. The Summer Convention of the A.I.E.E. was held at Atlantic City, N.J.





## CHATHAM HONORS RETIRING EMPLOYEES

**T**WO retiring employees of Chatham Public Utilities Commission, Walter Killby and Ethelbert Tugwell, were honored recently by commission members and fellow-employees at a banquet and social evening. Mr. Killby, who was born in England, joined the Chatham Hydro staff in 1919. From 1926 until his retirement he was a member of the billing department staff. In the photo on the left, Mr. Killby is presented with a Mixmaster and accessories by Mayor W. A. Donovan (left) with George Cook, another retired employee, centre. Mr.

Killby also received a smoking jacket from his fellow-workers. Mr. Tugwell, left, in the photo on the right, was born in England also, coming to Canada in 1905. He joined the Chatham Hydro staff in 1914 and during the years fulfilled the duties of operator, salesman, and trouble-shooter. In the photo above he is shown as he was presented with a set of luggage by Commissioner S. G. Thomson. He also received a shaving kit from the Chatham Hydro-Electric Social Club.

## SUDBURY AND ALGOMA AREAS EXTEND SERVICE

### Algoma R.O.A.

Construction of some 50 miles of line between Spanish and Algoma Mills by Ontario Hydro crews is expected to be completed this fall, P. R. McAdam, Manager, Sudbury Area, announced recently.

This will mean that 250 customers or families will be supplied with power. The line will touch the hamlets of Spragge and Cutler. About 25 of the proposed 50 miles will link Spanish and Algoma Mills. The balance is for extension off the present line from Espanola to Spanish which was built last year.

First power was given to Algoma Mills last December with the building of a 1000-kva station at Espanola and some 75 miles of line to serve 320 customers. These customers are in the communities of McKerrow, Walford, Spanish, Lee Valley and the surrounding farm areas. By fall the Algoma Area will have about 570 customers.

### Sudbury R.O.A.

About 10 miles of rural line will be built in the Sudbury Area to give service to some 70 customers. In addition, it is expected that about 1,200 customers will be served from existing lines this year.

Last year, 1,329 new customers were added in the Sudbury Area. This involved the construction of about 70 miles of line and the servicing of housing in 26 new subdivisions.

At the end of the year there were 7,445 rural customers in the Sudbury Area, and with the expected 1,300 or more new customers this will grow to between 8,500 and 9,000. The majority of these customers are in the areas suburban to Sudbury City and in the communities adjacent to the mining districts. Since 1947 the number of Sudbury Area Hydro customers has increased by more than 5,000. New connections have averaged over 1,000 per year, with the

rapid expansion going on in the nickel mines, this is expected to continue for several years.

### Build New Substation To Relieve 25-Cycle Load

Construction of a new substation to relieve 25-cycle load on other system stations of the Hamilton Hydro-Electric Commission has been announced by A. W. Bradt, General Manager.

The station is equipped for rapid changeover to 60-cycles and will be fully automatic with operation by remote control as are 11 others throughout the city. Six substations of the old type require a full-time operator.

The new brick and stone building with glass block windows has been designed to conform with the architecture of other buildings in the district.





H. E. DICKINSON

### St. Marys Names New Manager

Hubert E. Dickinson was recently appointed Manager and Secretary-Treasurer, St. Marys Public Utilities Commission. He succeeds A. E. Fort, who resigned recently to accept a similar position at Port Colborne. Mr. Dickinson is a member of St. Marys Rotary Club and United Church. He has served a number of years on the St. Marys Town Council, being a former Mayor of that municipality, and on the St. Marys District Collegiate Board of which he is a Past Chairman. He is a Past President of the Associated High School Boards of Ontario and Past Chairman of the Ontario School Trustees Council. Prior to his new appointment, he was Vice-President and Sales Manager of C. Richardson and Company, Ltd., St. Marys.

### Listowel Commission Plans New Station

Listowel Public Utilities Commission will finance construction of a new sub-station costing approximately \$60,000 and complete local frequency standardization work from a \$70,000 debenture issue, recently approved by the Ontario Municipal Board. A new building is not required since the three new 26,000-volt transformers will be located at the rear of the present sub-station. Switching equipment will be housed inside the station. Construction of the station will be carried out by Ontario Hydro. "The town of Listowel will definitely benefit financially from the construction of this sub-station," said PUC Superintendent R. B. Linna.

## VETERAN WATERFORD SECRETARY RETIRES

**D.** A. HILL, Secretary-Treasurer, Waterford PUC and Clerk-Treasurer of Waterford Village and Townsend Township retired recently after 29 years' continuous service. His successor is L. D. Simington.

Born in Townsend Township in 1883 and educated in the local public and high schools, Archie Hill is virtually a life-long resident of the district except for a brief residence in St. Thomas during his youth.

Educated in the local public and high schools, Mr. Hill was associated with a successful grocery and meat business at Waterford with his father for several years.

On February, 1924, he received the dual appointment of Clerk-Treasurer of Waterford and of Townsend Township, succeeding the late James Ross.

At the same time he became Secretary of the Townsend Farmers' Mutual Fire Insurance Company, one of the oldest companies in business, and Secretary of the Waterford PUC. Since 1930 he has been Secretary-Treasurer of the Greenwood Cemetery Commission.

He was Secretary of Wilson Lodge No. 113 A.F. and A.M. for 10 years, and Secretary of the Waterford Lions' Club



D. A. HILL

for seven years. Mr. Hill also served in the position of Secretary for the Waterford Hockey Club, and the Waterford Baptist Sunday School.

His chief hobby has been lawn bowling. Fittingly enough, he has served also as Secretary of the Waterford Lawn Bowling Club. Other hobbies include hunting and fishing.

Married, he has one son, Dr. Malcolm B. Hill, of London.



### Metermen Hold Session at Sarnia

**D**ESCRPTION of a new type of watthour meter and discussion of new meter regulations, recently introduced by the Canadian Government, featured the semi-annual meeting of the Western Ontario Metermen's Association at Sarnia. Chief speakers were R. D. McKimmie, St. Catharines (second from left), who dealt with "Design Problems of Watthour Meters," and J. C. Smith, London, Government Inspector, who explained a new regulation extending the seal period on new meters from six to eight years. Presiding was Gerald McClymont (extreme left), of Chatham, President of the western group. Also taking part in the discussions were Allan Lawson, Sarnia, Secretary-Treasurer, and Stanley McNeil, Superintendent, Sarnia Hydro Electric Commission, shown in the photo above.



## Rehabilitate Hawkesbury Electrical System

Initial stage in a rehabilitation of the Hawkesbury distribution system and a rehabilitation of the Snye subdivision in Hawkesbury has been authorized, Mayor Charles E. LaFrance announced recently.

First stage of the program involves the relocation and the addition of distribution transformers; the extension of primary circuits at several locations, and the replacement of all poles where transformers are replaced or added. This phase of the rehabilitation scheme will cost \$31,856.

Later, further rehabilitation measures will be undertaken which will include the replacement of inadequate primary and secondary bus; general pole replacement and standardization of the street lighting circuit; changing the distribution system from 2300 to 4000/2300-volt operation and minor additions to the distribution circuits. The total program will ultimately cost an estimated \$93,856.

## Kingston P.U.C. Plans Improvements

Kingston Public Utilities Commission will construct a new substation this year and make extensions and improvements to the Hydro distribution system, PUC Chairman Col. James Harris announced recently. The program expected to cost \$317,339 will be financed from available funds and by the proceeds of a debenture issue of \$250,000.



FOURTEEN-YEAR-OLD James Taylor of Port Stanley examines old-type electric bulb said to have been installed in the Taylor home 45 years ago. "Jim" is less than a third of the age of the carbon-filament bulb which is still in use in an outside socket with scant protection from the weather.

## Smiths Falls Man Elected Masonic Grand Superintendent

George A. Philips, Jr., Smiths Falls Hydro-Electric Commission, was elected Grand Superintendent of Ottawa District No. 13 at the Grand Chapter of the Royal Arch Masons of Canada 95th annual convention held recently in Toronto.

The election of Mr. Philips as Grand Superintendent is the highest honor that has been accorded him during his 23 years of Masonry. He succeeds H. T. C. Humphreys, Ottawa. Mr. Philips is a Past Master of Osiris Lodge No. 489, AF & AM, Smiths Falls; a Past First Principal of St. Francis Chapter No. 133, Royal Arch Masons, Smiths Falls, and a Past District Deputy Grand Master of St. Lawrence District No. 15, AF & AM. His district includes an area bounded by Pembroke on the north and the Quebec border on the south.

## Ottawa Hydro Reports Substantial 1952 Balance

Ottawa Hydro-Electric Commission closed its books for 1952 with a cash surplus of \$261,000, Chairman Stanley Lewis announced recently. During the year a total of \$966,000 was expended on plant maintenance and operations. Since its inception in 1905, the Ottawa Commission's assets have grown to a figure of approximately \$16,500,000. During the past year 859 new street lights were installed, 286 being replacements of older fixtures.

## Waterloo Surplus Shows Increase

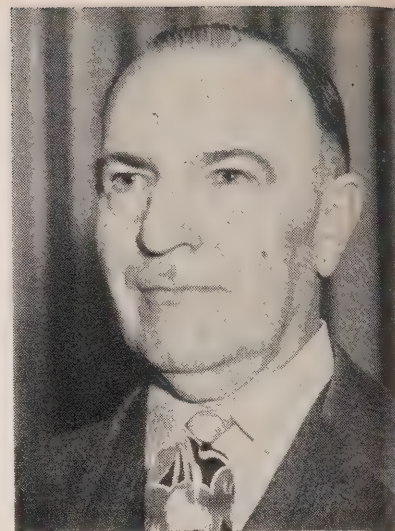
Waterloo Public Utilities Commission reports a \$16,000 surplus during the first three months of this year of which \$12,099 was in the electric department and the remainder in the water department. During the same period last year, the electric department had a surplus of \$14,251.

"TV is really wonderful."

"Yep, years ago it cost 35 cents to see Hopalong at the movies. Now you can stay home and see the same picture for only \$200."

\* \* \*

Friend—One who has the same enemies you have.



J. S. McGREGOR

Assistant General Manager of the Toronto Hydro-Electric System, who has been elected President of the Toronto Chapter of the National Office Management Assn. for 1953-54.

## Waterdown Hydro To Purchase H.E.P.C. Rural Circuits

Waterdown Public Utilities Commission has received approval to expend \$24,079.76 for purchase of H.E.P.C. rural circuits within the limits of the municipality and for extensions and improvements to the local distribution system carried out in 1951 and 1952, and a proposed for this year and 1954. The cost of the program will be financed from surplus earnings and the proceeds of a debenture issue totalling \$15,000.

## AWARD OF MERIT

IN recognition of distinguished service to the organization, R. B. Young, former Associate Director of Ontario Hydro's Research Division, and now Consultant to that Division, is to receive an Award of Merit from the American Society for Testing Materials at the Society's annual meeting in Atlantic City, N.J., on June 30. This is the fourth year that the Award has been presented, and Mr. Young is one of 10 members to whom the 1953 Awards are being made. This distinguished engineer was recently honored with the presentation of an Honorary Membership in the American Concrete Institute (See *Ontario Hydro News*, February-March, 1953).



# Maybe You'll Laugh Too!



He: "But you promised at the altar to obey me."

She: "Of course, I didn't want to make scene."

"Waiter, there're two flies in my soup."  
"So he finally caught up with her."

A mountaineer on his first visit to the city was fascinated by the asphalt streets. Scraping his feet on the hard surface, he remarked to his son: "Well, I can't blame 'em for building a town here. The ground's too durned hard to plow, anyhow."

He: "Darling, your eyes are like deep pools of sparkling water, your lips are like two little red rosebuds wet with the morning dew, your teeth are like the finest pearls, but you have the darndest looking nose I have ever seen on anything except an African anteater."

Sweet young wife: "Now over in this corner, we'll have a loveseat—over there, we'll have a loveseat, and here by the fireplace we'll have another loveseat."

Decorator: "My word, do you call this living room?"

Young wife: "Why of course—if that isn't living, I don't know what is!"

Golfer (dubbing a shot): "I'm certainly not playing the game I usually play."

Caddy: "What game is that, sir?"

A couple were blessed with a child their first year of marriage. They did not, however, get to the hospital quick enough and the baby was born on the lawn in front of the hospital. The itemized bill was finally received and the careful husband objected strenuously to one item: "Delivery room, \$25." He returned the bill for revision. In due time it was returned with the objection-

able item revised to read: "Greens fee, \$25."

Little Audrey was riding in a cab and the driver told her to get out because he was going to drive over the cliff. Little Audrey just laughed and laughed because she knew the cab was yellow.

She's so dumb she thinks 3 Star Hennessey is a race-horse.

"Why are you so happy, Mrs. Murphy?"  
"Sure, me boy's comin' home today. He was sentenced up to 10 years in the penitentiary for running booze, but he got three years off for good behaviour."  
"Ah! I wish I had a son like that."

"I'm sure having a hard time keeping the wolf away from my door."

"Keeping him away? I'm slowing him down!"

Anybody can play bridge, but it takes a cannibal to throw up a hand.

"What shall I do? I'm engaged to a man who simply cannot bear children."

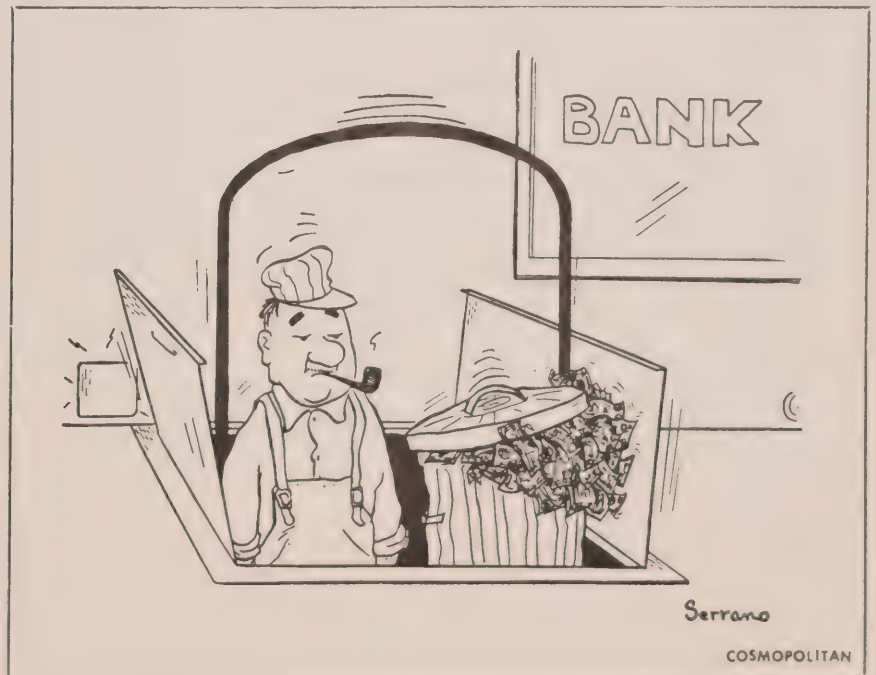
"You mustn't expect too much of a husband."

Sunny: "I feel as fresh as a two-year-old."

Gloomy: "Horse or egg?"

Bride: "When you married me, I thought you were daring and courageous."

Groom: "Name one person who didn't!"



Serrano

COSMOPOLITAN



# #his and #hat

## Hydro Pioneer

**T**HIS MONTH we would like to pay a brief tribute to a man who by his quiet, unswerving devotion to the cause of Hydro in this province has made a lasting contribution to this province-wide utility and the traditions of service for which it stands noted today.

His name is Roy Belfry, the oldest of six sons of the late Sherman Belfry, all of whom have given faithful service to Hydro in the past quarter-century or more. Born at Victoria Harbour, Roy commenced his Hydro career at Waubashene in the summer of 1914. He worked on the construction of lines to serve Coldwater, Elmvale, Stayner and Fergusvale. Later he was associated with the construction of transmission lines to provide service for Port McNicoll and Waubashene. That was before the days of regular hours or holidays with pay, so the ambitious young apprentice worked both Christmas and New Year's.

In February, 1916, he enlisted and by the first of July was in France where he remained until the end of World War I. By January, 1920, he was back with Hydro's construction crews working at Peterboro and later Port Arthur. That same year he transferred to the Operating Department. After a short period of service at Durham he was transferred to Cannington in 1926. When he arrived in Cannington he was a one-man crew: superintendent, construction lineman, operating lineman, meter reader, maintenance man, etc., and etc. His truck was his own modest car, and his area covered the municipalities of Cannington, Woodville, Sunderland, as well as the surrounding rural districts. In the words of one Cannington admirer: "Hydro as it is today in this community is a monument to his faithfulness to the system and to the people."

Not long ago, Roy retired and the number of presentations made to him as Manager of Cannington Rural Operating Area and Cannington Hydro-Electric Commission was an eloquent expression of the esteem in which he is held. The Cannington Commission presented him with a desk and bookcase, and at the same ceremony honored his mother, Mrs. Sherman Belfry, of Victoria Harbour, who received a bouquet of flowers. Members of the R. O. A. staff presented him with a platform rocker and matching ottoman, while his wife received a gold lapel-pin and matching accessories. Fellow-employees of the Georgian Bay Region, in a ceremony at Orillia, presented him with a radio and MacLeod tartan rug. Fellow Area Managers in the Georgian Bay Region recently presented him with a travelling bag.

It is interesting to note that he has chosen to retire in the village which he has served for almost a quarter of a century. It is gratifying to note also that the Belfry tradition of Hydro service is being maintained by three of his brothers, and also by second generation members of the Belfry family. Two brothers, Arnim and Norman, are Area Managers at Bala

and Walkerton respectively, while a younger brother, Orin, is sub-foreman with the Owen Sound Area. Another brother, Melville died at Barrie a few years ago, being Line Superintendent in the Georgian Bay Region at the time of his death. His widow is, at present, switchboard operator at the Barrie headquarters, while his daughter, Leona, is a member of the stenographic staff of the Georgian Bay Region. Another member of the Belfry sextette, "Mert" Belfry, now living at Uxbridge, was associated with the Commission for several years.

## Coronation Motif

In keeping with the 1953 theme, Ontario Hydro's giant floral clock at Queenston, near the Sir Adam Beck-Niagara Generating Station No. 1 is featuring a Coronation motif this year. Already hundreds of visitors have stopped to view the Imperial State Crown formed by some 20,000 carpet plants. The predominant colors will be gold on red. The crown—measuring approximately six and one-half feet in width, and nine feet in height—will include "jewels" of cacti in white, gold, brown and yellow. It will be set against a background of red alternanthera, and will separate the initials "E.R.," which will appear in yellow. Also featuring alternanthera aurea (yellow) will be the numerals 1953 which dominate the top half of the dial. For the Coronation design, approximately 1,130 square feet of area have been filled with carpet plants.

## "In a New Light"

Still talking about Niagara! A visitor to that area, H. T. I. Lee, of Toronto, recently communicated with Chairman Robert H. Saunders. Some of his comments, we feel, bear repeating:

"This was not our first trip by any means, but we had a visitor who had not been there for thirty years, and as I listened to the conversation in the back seat I began to realize that I had been taking a lot of things for granted, and as a result I saw Niagara Falls in a new light.

"The thing that struck me both at the tunnel intake at Chippawa and down at the Queenston Power Plant was that a tremendously big job was underway, and yet the operations have been so contained that this beautiful scenic highway can still be enjoyed throughout its entire length without resorting to a lot of detours. I can well imagine that projects of similar magnitude being carried on elsewhere would have been accompanied by a diversion of traffic throughout the entire area. In the case of the Hydro, the work in progress can be seen and enjoyed.

"I returned from our day's trip with a new appreciation of our great attraction—the Falls—and a new realization of the magnitude of the development which is underway in that locality, and which is rapidly nearing completion. I am in agreement with our visitor's comment, 'they must have been wonderful people to have figured all this out.'"





*... Right now, Gentlemen,*

## **We should see about Hydro Power**

In your plans for plant expansion or for new equipment requiring additional power, make certain that the power lines that feed your plant can supply an added load . . . or if new power lines are necessary, that ample time is given to dovetail your requirements into the overall Hydro distribution system.

While plans are in the blueprint stage, consult your Hydro office.



If you are improving or building a home, ask your Hydro for the booklet "Adequate Wiring Today for Electrical Living Tomorrow."









1950 VOLUME 40 NUMBERS 7 & 8

ONTARIO HYDRO

# News

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# ONTARIO HYDRO

# News

JULY, AUGUST, 1953 VOLUME 40 NUMBERS 7 and 8

Published by

THE HYDRO-ELECTRIC POWER COMMISSION  
OF ONTARIO

620 UNIVERSITY AVENUE, TORONTO



## AVENUE OF COMMERCE

**P**ROPOSERS of the great St. Lawrence Seaway and Power Project moved another step closer to the realization of their 50-year old dream of harnessing the resources of this mighty stream recently when the U.S. Federal Power Commission approved the application of the New York State Power Authority to develop the power potential of the International Rapids section of the river jointly with Ontario Hydro.

While it is highly encouraging to note this latest development, it is well to remember that there may be further delays in the scheme through legal action in U.S. courts. It is quite possible that several months may elapse before the participating agencies are given the final signal to proceed with this indisputably important and necessary project.

But, meanwhile Ontario Hydro has not been losing a moment in pushing ahead with preliminary planning and investigation of the site of the proposed power development. Thus, the Commission will be ready to present a completed report of its engineering studies to the international Joint Board of Engineers when that body is named.

The benefits of the power aspects of the project are well-known to many readers of *Ontario Hydro News*. Hydro Chairman Robert H. Saunders, in pressing repeatedly for approval of the project, has pointed out that the St. Lawrence River would produce for each country an average of 6,300,000,000 kilowatthours of electrical energy per year, equivalent to the effort of 28,000,000 men working eight hours per day for 300 days.

Quite apart from the imposing electrical benefits to be derived will be the striking effect of water-borne transportation. With the new navigation facilities completed, vessels of substantial size from many ocean ports of the world will be able to use this great marine highway.

According to recent figures released by the Dominion Bureau of Statistics, freight traffic on Canadian canals set a "new modern record" in May. This new peak tonnage amounted to 4,402,774, exceeding the previous high registered in September last year by 3.6 percent, and the May, 1952 total of 4,150,931 tons by 6.1 percent. Freight tonnage on the Welland Ship Canal was higher in May than ever before. On the St. Lawrence canals the month's freight traffic increased to 1,456,133 tons from 1,356,057 at the same time last year.

With the St. Lawrence opened to deep-draught vessels, there seems little reason to doubt that the figures quoted above will shrink into insignificance when compared with the new tonnage totals, and that it will rapidly become one of the greatest avenues of commerce in the modern world, handling traffic equal to the combined tonnage passing through major world canals in a 12-month period.



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## CONTENTS

Page

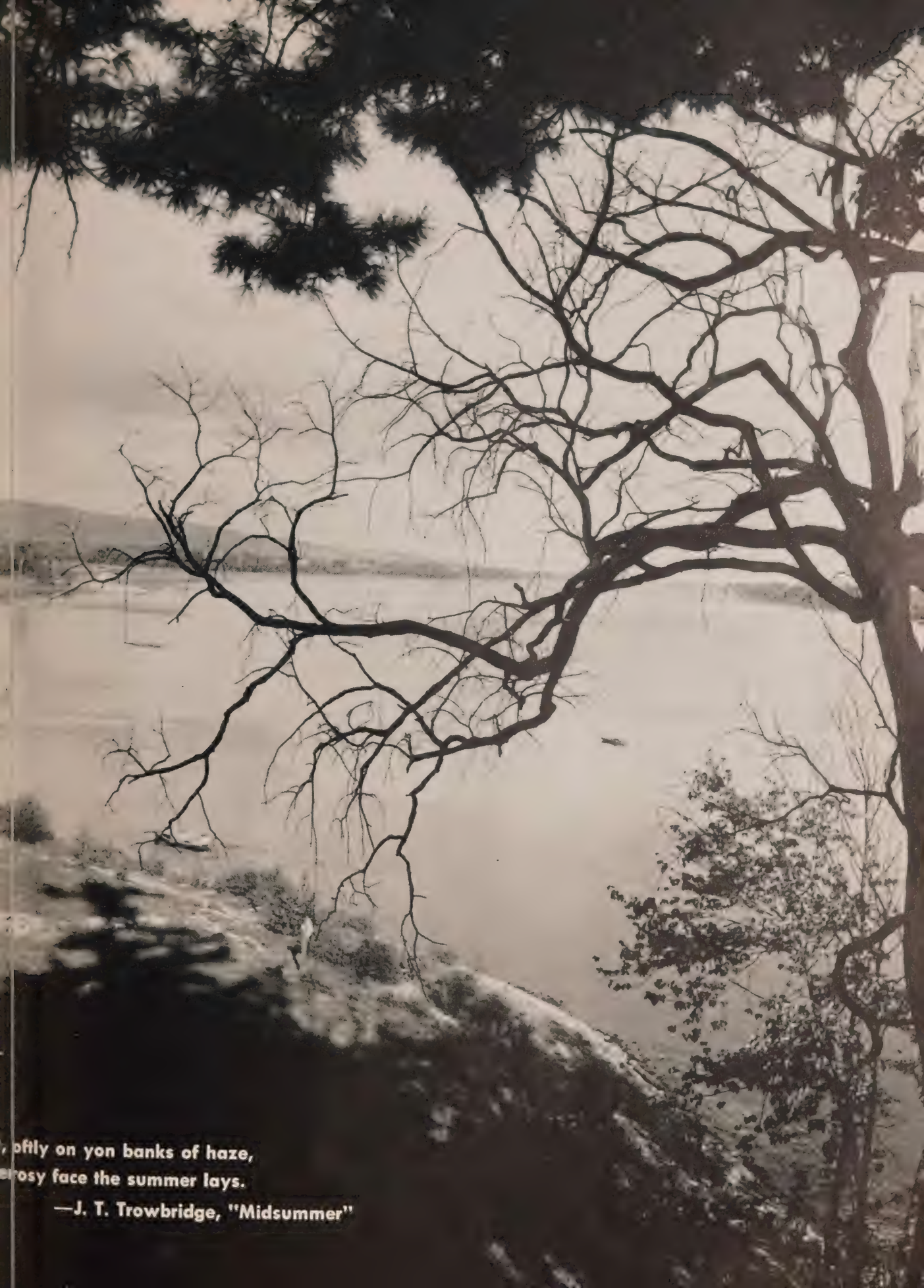
Major Expansion	2
Aquatic Detectives	4
Niagara Surgery	7
For Safety's Sake	10
Cleveland Studies Toronto	15
A.M.E.U. Technical Conference	16
Meet at New Hamburg	18
Co-operative Fire Insurance	19
Along Hydro Lines	21
A Veteran Retires	22
With Justice and Equity	24
Hydro Home Forum	24

## COVER PHOTOS

**A**S a tribute to our gracious young Queen Elizabeth II, the Commission has incorporated a Coronation motif in the design of its world-famed floral clock at Queenston this year. Always a popular point for visitors, the unique timepiece, depicted on this month's front cover, is attracting even larger groups of admiring tourists this year. A short distance from the clock, Hydro is making excellent progress with the new Sir Adam Beck-Niagara Generating Station. Construction of the massive powerhouse is shown on the back cover.

Material published in *Ontario Hydro News* may be reprinted without permission. Most photographs are obtainable on request. If required, stereos will be provided.





, softly on yon banks of haze,  
rosy face the summer lays.

—J. T. Trowbridge, "Midsummer"



# MAJOR EXPANSION

Commission authorized to increase capacity of new  
Sir Adam Beck plant at Niagara

**A**PPROVAL of an Order-in-Council authorizing Ontario Hydro to amend its program for work and expenditures at the new Sir Adam Beck-Niagara Generating Station No. 2 project was announced recently by Ontario Prime Minister Leslie M. Frost.

In his announcement, Premier Frost pointed out the authorization covered an increase in the \$299,900,000 presently authorized for the Niagara development of about \$21,000,000, and contemplated an additional expenditure of approximately \$24,000,000.

This new authorization covers:

- (a) Construction of a large storage reservoir over 600 acres in extent containing 650 million cubic feet of water, where water, not required for power development during the night, when demand is low, can be stored.





for use in times of high demand. This will be particularly helpful in the late fall and early winter when the hours of sunshine are at their lowest point;

- (b) Installation of a pumping plant to raise water from the canal to the reservoir, with a generating capacity of 170,000 kilowatts (226,000 horsepower) when operated in reverse during discharge of water into the forebay for use through the units in the Sir Adam Beck plants;
- (c) Four additional generating units in the Sir Adam Beck-Niagara Generating Station No. 2 of similar capacity to those now being installed (100,000 horsepower each) complete with associated powerhouse and penstock works (it is presently estimated that these units will not be required until 1962);

- (d) Widening of the canal and enlargement of the forebay, now under construction, and extension of parts of the headworks and substructure to provide the complete hydraulic works necessary to carry water to the penstocks of the four additional units.

Mr. Frost, in dealing with the factors surrounding the "stepped-up" development of Ontario's share of the hydro-electric resources at Niagara, made public a letter from Hydro Chairman Robert H. Saunders requesting authorization to extend the project.

#### Peak Deficiencies Indicated

In this letter, Mr. Saunders said: "As in the case of No. 2 tunnel (at the Sir Adam Beck No. 2 project) it was not the Commission's intention to proceed with the pumped storage until after the St. Lawrence power was in use. However, the long delays encountered in receiving authority to proceed with the St. Lawrence Project, and the continued

increase in demand (primary peak demands in the Southern Ontario System during the week ending July 19, 1953, were 7.5 percent or 226,500 horsepower higher than those of the same week in 1952) dictate a change in plan. Our present opinion is that by the summer of 1954 we shall be well ahead with construction on the St. Lawrence, and can hope for St. Lawrence power by the year 1958. The recommendations embodied herein are based upon this opinion regarding the St. Lawrence."

Amplifying his statement respecting the power resources of the Commission, Mr. Saunders said that peak deficits on the Southern Ontario System of 475,000 kilowatts in October, 1957, and 140,000 kilowatts in December, 1957, were forecast, with presently authorized facilities all available, and a conservative yearly load growth of 6.4 percent assumed. It was expected, he continued, that the St. Lawrence Development could not be placed in initial service in 1957. Alternative resources must, therefore, be provided if the indicated deficits were to be met.

Various alternatives had been considered, and the method recommended to meet the deficits had resulted from these studies.

#### May Provide Reserve

"Should the St. Lawrence Development materialize so that the two initial units in this development become available for service in June, 1958, followed by further units at this project at the rate of two units every two months, the recommended storage reservoir will meet the estimated deficits in 1958, and in 1959 will provide at least 10 percent peak reserve, as well as replace 100,000 kilowatts of thermal (fuel-generated power) reserve."

A small deficit was indicated in October, 1960, if no reservoir or alternative resources other than the St. Lawrence were provided. The reservoir would overcome this deficit and provide surplus resources of about 350,000 kilowatts or eight percent of the estimated load. In 1961, estimated deficits in October, November and December could be overcome if the reservoir only was constructed, without the additional units in Sir Adam Beck-Niagara Generating Station No. 2.

If the reservoir were not provided the alternative available would be: (1) Provision of additional thermal resources, or (2) Purchase of peak capacity from interconnected systems coupled with construction of small thermal or high-cost hy-

draulic stations.

"The capital cost of the reservoir and pumping generating plant is about the same as that of a thermal plant of corresponding capacity, but the annual charges are estimated to be about \$3,000,000 less," the Hydro Chairman said.

#### Many Benefits

Installation of the new facilities provided for in the authorization will have the following benefits:

- (a) Increase the generating capacity of Sir Adam Beck No. 2 plant by 170,000 kilowatts (226,000 hp.) by pumping the water into the reservoir at night and running that same water back through the pump which is, in reverse, a generator with a capacity of 170,000 kilowatts (226,000 hp.);
- (b) Allow the use of all generators of the Sir Adam Beck No. 2 station during the entire year, more particularly in September and October when the need is greatest. In this way, and during the months of May to October, the scheme will assist to the extent of 400,000 horsepower, i.e., the Niagara Diversion Treaty allows less water for power during the daytime tourist season than at night. The extra water allowed at night can be made available during the day by storing it in the reservoir. Without the reservoir, restrictions in the amount of water diverted would render approximately four to five units idle from May to the end of October, although this power is most vitally needed in September and October;
- (c) Allow the extension of the Sir Adam Beck No. 2 plant by 400,000 horsepower in the most economic manner, when needed and with a minimum of delay.

The completed Sir Adam Beck No. 2 project will have a total ultimate generating capacity of 1,826,000 horsepower, including 1,200,000 horsepower presently authorized; 226,000 hp. pumping station in reverse, and 400,000 hp. in four additional units when required.

"The estimated cost of this amended program, excluding the four additional units, is \$320,978,000, of which \$299,900,000 has already been authorized. The estimated cost of the amended program, including the four additional units, which, we anticipate, will not be needed until 1962, is \$343,742,000, of which \$299,900,000 has already been authorized," Mr. Saunders said.

ETCHED aerial photo of Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2 development shows huge new storage reservoir and pumping plant locations. New reservoir will permit conservation of Niagara River water during night when not required for power generation. During daytime peak demand periods, stored water can be utilized to augment power output.





# AQUATIC DETECTIVES

**Frogmen examine Ontario Hydro's power canal near Niagara Falls prior to cleaning operations**

**F**ROGMEN, those valiant underwater denizens whose exploits have been winning popular acclaim lately, can play many roles—in peace as well as in war! Quite recently two frogmen made a detailed inspection of the bottom of Ontario Hydro's power canal supplying the Commission's existing Sir Adam Beck-Niagara Generating Station No. 1. This unique operation was scheduled for a Sunday morning when the 525,000-horsepower plant was shut down to allow examination of the bottom and walls of the 8½-mile waterway.

The preliminary examination was undertaken to assess the amount and concentrations of debris; to ascertain whether any defects existed in the concrete lining of the bottom of the canal, and to assist in determining the best method of cleaning out the canal. Debris in the 48-foot wide waterway has reduced the operating head at the big Niagara plant causing an average loss of some 46,000 horsepower (35,000 kilowatts). This has meant the loss of substantial investment in capacity and millions of

dollars in revenue over the years.

## **In Service 31 Years**

Owing to the steadily-soaring demand for power in this fast-growing province, requiring all available output from the Hydro plant, it has been impossible in the past to take any action on this canal since it was placed in service over 31 years ago. However, it will be possible to close the canal within the next year or more and convey water through one or both of the completed tunnels and the new 8½-mile canal which are being constructed.

*(Continued on page 6)*



CHAIRMAN Robert H. Saunders receives first-hand report from Frogmen Aubrey Russell, I., and Tom Rutherford. The latter wore a skin-tight rubber suit for underwater inspection.

FROGMAN prepares to enter water immediately below McLeod Road gate. Seated in boat (back to camera), is O. E. Johnston, Project Engineer, Sir Adam Beck G.S. No. 2 project. Kneeling is Assistant Field Project Engineer William Hogg, while among the party of spectators are Ross Young, Jack Large, Ray Griffin, Grant Huber, Glyn Rees.

IN the shadow of the Montrose Control Gate, Frogman Aubrey Russell reports findings to Engineer Johnston. Diver was cleaning lower gate checks when photograph was taken.



necessity of dewatering the canal to carry out the investigation.

### Three Phases

Canal inspection work was carried out in three main phases. Services of the frogmen were utilized, owing to their speed and manoeuvrability, to inspect long stretches of the rock section of the canal. They entered the water at 7.30 a.m. and continued their work until 12.30 noon. One man started at the Montrose Control Gate, near the upper end of the canal, and proceeded down to the Victoria Avenue Bridge. The other man continued from that bridge down to the forebay. Both inspected places in the canal where echo-soundings had indicated concentrations of debris.

The second part of the operation was a critical inspection by a regular diver of the trapezoidal section of the canal where a concrete trough-like structure takes the canal flow over the ancient St. David's soft gorge.

The third phase consisted of detailed measurements of the gate checks on the big control gate at Montrose. Two divers worked here, cleaning out the lower sections part of the checks or gate grooves, and then utilizing specially-made measuring jigs to make the gate check measurements.

### No Structural Defects

Examination of the canal, which has been in continuous service since 1922, revealed that the waterway had been so well-built that there were no serious concrete breaks of any kind, and all struc-

s part of the facilities for the new Sir Adam Beck plant adjacent to the existing station.

Utilizing frogmen's services in examination of the canal structure, preparatory to rehabilitation and cleaning operations, as suggested by Dr. Richard L. Hearn,

General Manager and Chief Engineer. Dr. Hearn, in recent months has taken a keen interest in the varied roles which these underwater experts have been playing, and he devised the idea of adapting their particular skills to this project. Use of frogmen and divers thus obviated the





CONVENTIONAL-type diver is getting ready to inspect trapezoidal section of the canal.

BOAT was used to examine canal wall which proved to be in satisfactory condition.

tural features of the canal were sound. Cause of the loss of head was found to be due to boulders and rocks. Some of the rock rubble evidently had been rolled in by children during the years. A rock slide, just north of Lundy's Lane, in the spring of 1950, when a section of the built-up stone and concrete retaining wall gave way, piled up some rubble on the bottom. The frogmen reported a substantial amount of rocks and boulders at one end of the trapezoidal section of the canal. In the forebay, the concrete water splitter or diffuser, used to spread water more evenly in that basin, was found to be virtually disintegrated. This structure was damaged in the early years when it was necessary to blast to break up the ice in the forebay.

A boat trip down the canal to inspect the walls revealed that all the concrete along sides was in good shape. Even the gunnited walls near Lundy's Lane were found to be still in good condition.

#### Strange Objects Found

Up at the control gate near Montrose, where the rock section of the canal begins, a variety of objects was found in addition to rocks and boulders. Divers discovered an auto wheel, large concrete sewer pipe, a cash register and an out-



board motor, the latter two items being badly deteriorated.

Hydro Chairman Robert H. Saunders in commenting on the unique and successful project said:

"It is a tribute to the engineers and construction men who built that great

project 35 years ago, in the early days of Hydro, that the concrete bottom and walls of this canal have stood up so well for so long, under all kinds of weather. Now plans can proceed for the cleaning out operations to restore this canal to original efficiency."





VIEW of twin Niagara cataracts from Rainbow Bridge at the International Boundary.

# NIAGARA SURGERY

**Ontario Hydro and United States to proceed with dual-objective remedial scheme above Horseshoe Falls**

**O**FFICIAL approval and authorization to proceed with the installation of remedial works on the Niagara River was announced simultaneously by Canada and United States on July 22.

Amplifying the announcement, Hon. Leslie M. Frost, Q.C., Prime Minister of Ontario, said that actual work on the Canadian side of the river would be under the jurisdiction of Ontario Hydro which now has its major power development—the Sir Adam Beck—Niagara Generating Station No. 2 project—in an advanced stage of progress about six miles downstream from Niagara Falls.

With President Eisenhower indicating that funds would be allocated to permit the United States to make an immediate start on its portion of the project, Pre-

mier Frost said: "I have been assured many times by Hydro Chairman Robert H. Saunders that, as soon as the green light is given on the Niagara Remedial Scheme, his engineers were ready to go into action and carry out their part."

The purpose of the joint remedial scheme is to preserve and enhance the scenic beauty of the Niagara Falls and River, and to contribute to the most effective use of water for power production. The remedial works will accomplish this objective by: (1) Distributing the flows over the Falls stipulated by the 1950 Niagara Diversion Treaty in such a manner that an unbroken curtain of flow will be produced from shore to shore at all times; (2) Checking the erosion now taking place in the deep

notch of the Horseshoe Falls; and (3) Controlling the level of the Chippawa-Grass Island Pool so that present conditions in the Pool and river upstream will remain unchanged, the American Falls spectacle will remain unimpaired, and the most effective use of water for power production will be assured.

## Control Works

The remedial plan calls for the construction of a control structure at the Grass Island Pool which will control the water level in the Chippawa-Grass Island Pool area above the Falls (The Grass Island Pool control structure, about 1,550 feet long, will be located on the Canadian side of the river about 250 feet downstream from the existing submerged weir,

*(Continued on page 8)*



and will contain sluices or openings, each equipped with a control gate); Excavation of a channel on the Canadian flank and on the Goat Island flank of the Horseshoe Falls which will produce an unbroken crestline and induce the desired distribution of flow over the Falls. At the same time, earth and rock will be used to fill in the ends of the Horseshoe Falls to eliminate the incidental flow over the extremities of the crest and permit an unbroken curtain of water to flow over the precipice. It is expected that the fills, landscaped to blend with the gorge formation, will provide a very desirable attraction for Falls visitors.

The remedial scheme was developed by engineers of the Canadian Government, Ontario Hydro, and United States Army

Corps of Engineers working in close liaison. They made exhaustive studies of the river-bed and year-round flow of the Niagara River in the vicinity of the twin cataracts. Their plan was ratified "in principle" last November 20 at a special meeting in Islington, Ontario, between the International Joint Commission and the Niagara Parks Commission.

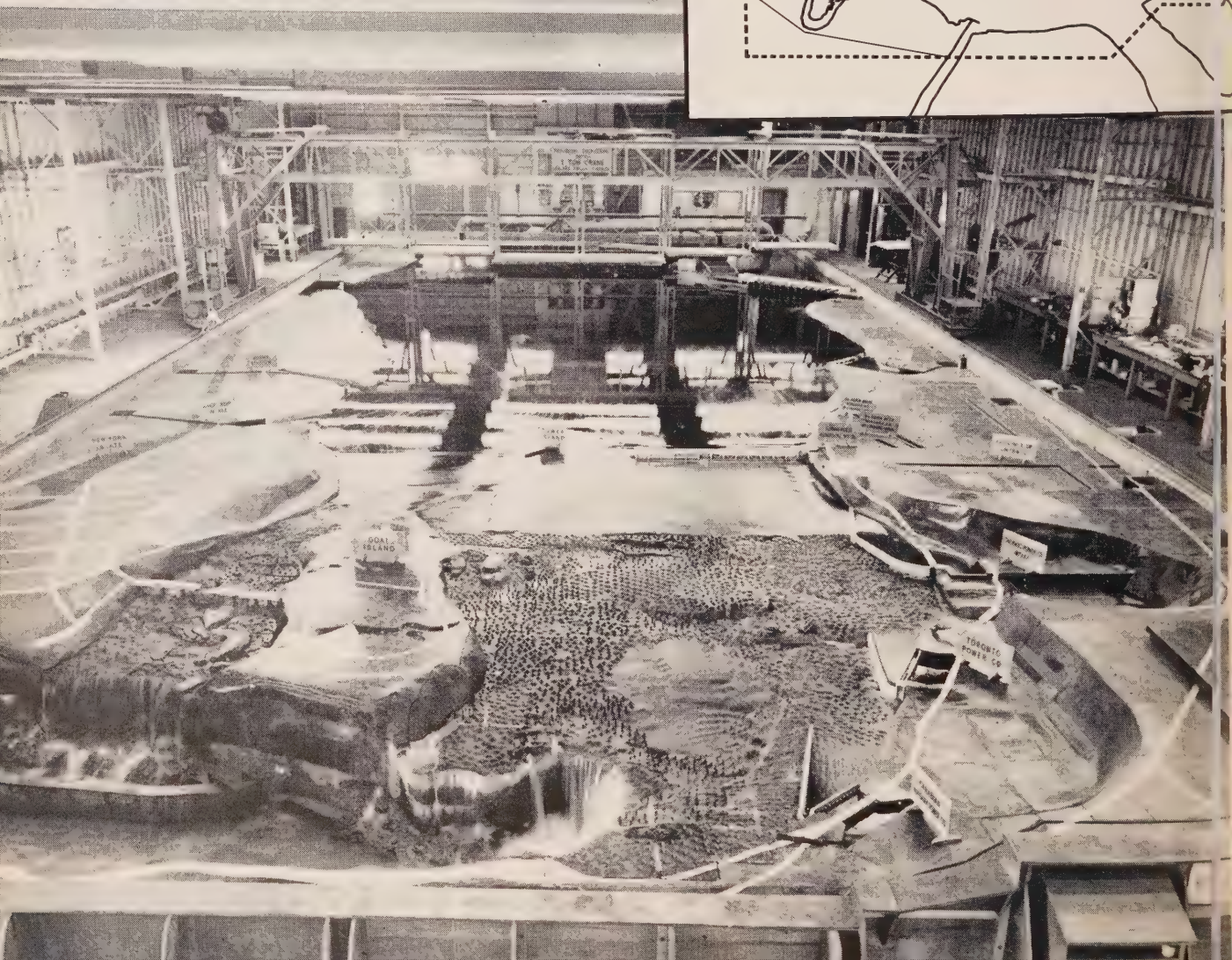
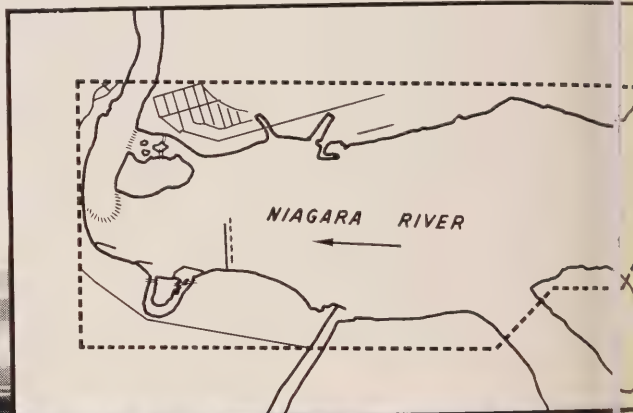
#### Hydro's Niagara Model

It was the Commission's well-known scale model of the Niagara River area, which played a vital part in the remedial scheme studies.

This model, located in a building on Hydro property, west of Toronto, was made to duplicate, in every way, the Falls and river. Each contour of the riverbed—each shallow, each deep, each rock and other obstruction—had its scaled counterpart in the model.

The model, which has been inspected by large groups of scientists, engineers and other interested parties since investigations were first undertaken in 1951, takes in five miles of the Niagara River, from the tip of Grand Island to Rainbow Bridge below the cataracts. Encased

ONTARIO HYDRO'S large Niagara model at Islington, Ontario (below), which has played an important role in the exhaustive studies carried out by Canada and United States relative to the remedial scheme. Model takes in five miles of the Niagara River area as indicated on the outline map on the right.





MAP of the Niagara River area showing location of the remedial works including the Grass Island Pool control structure and the crest fill on Goat Island flank (inset).

within concrete walls, it is 95 feet long, 37 feet wide, and approximately four feet high, built on a scale of 250 feet to one foot horizontally and 50 feet to one foot vertically. The larger vertical scale has enabled engineers to pattern more accurately the river's bed, and measure more closely the minute variations of water depths during experiments.

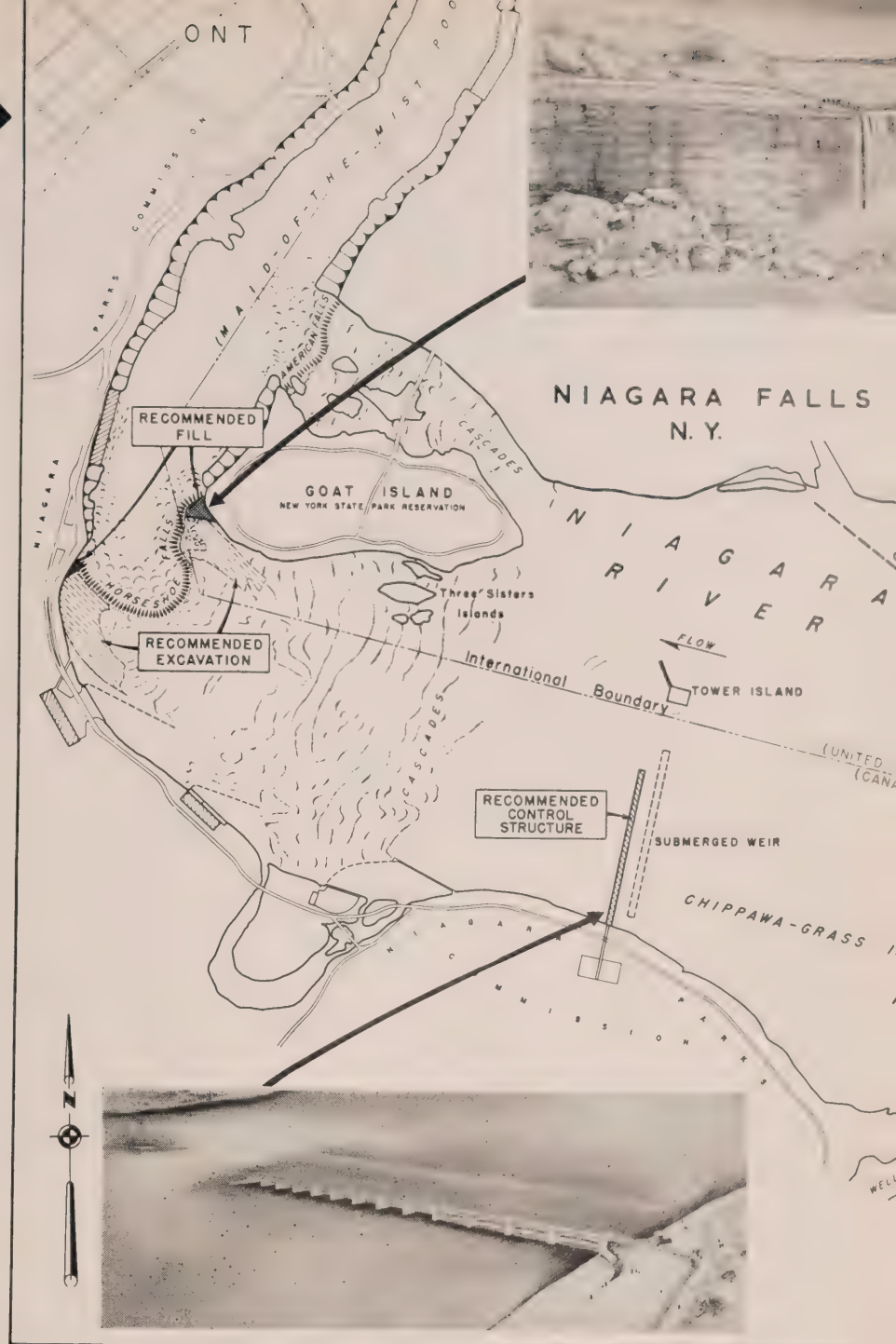
A reservoir below the model contains the water supply, which is pumped up to a constant head tank and released through three inlet pipes into the three channels at the upstream end of the model. These represent three channels in nature entering Grass Island Pool. After flowing through the model the water is returned to the reservoir to be used again.

Below the model's Canadian and American Falls, a dividing wall enables the flow over each falls to be measured. In addition, a special "scoop" permits measurement of flow along the crest of each falls, section by section. This water, as with that diverted through the intakes on the Canadian and American sides, is measured and discharged into the reservoir or "moat" at each side. The water then flows to the opposite end, where it is recirculated. A gantry crane of one-ton capacity runs the total length of the model, enabling engineers to work on any particular section. A thin measuring rod or point gauge, supported on a rigid cruss, travels the width and length of the model, permitting precise measurements of the water surface elevation at any location.

#### Climatic Factors

The construction of the model's riverbed was complicated by climatic factors. To create a solid, immovable foundation, a concrete floor slab was built and supported by 18-inch concrete walls sunk in the earth to hard clay. Upright plywood "ribs" or templates, previously shaped to the correct contours of the river bottom, were then set in the model. Sand was poured and compacted between them within three inches of the top and a shell of concrete poured over this mould. Wire screen in the Grass Island Pool areas and upright metal strips in the Cascades were required to duplicate actual river conditions.

Assuring the certainty and accuracy of the results obtained at the Islington model, were parallel tests carried out on



a model built by the U.S. Corps of Engineers at the Waterways Experimental Station at Vicksburg, Miss. This made possible a constant check on test findings during the progress of the studies.

Commending the close co-operation which had attended the studies pertinent to this project, Premier Frost said it was another indication of international goodwill, with Canada and United States "working together to mutual advantage so that our international waters will be

most effectively harnessed and protected for present and future generations."

The care with which plans were worked out will clearly show future generations that here, on the Niagara River, no wanton exploitation of a natural resource has been permitted, he stated.

"Indeed it is conservation in its truest sense, including not only the preservation, but, in fact a betterment of the scenic beauty of this great Canadian asset, Niagara Falls and River."



# For Safety's Sake

by ALAN F. TELFER

Executive Assistant to Advisory Committee  
Canadian Standards Association



**D**URING World War II, 400,000 Belgians laid down their arms because they had no ammunition for their guns. The British had ammunition that might have been used, but British ammunition did not fit the Belgian guns. One of the important causes of defeat in the first battle of El Alamein, and the British retreat in North Africa, was the lack of standardization in the replacement parts for tanks, radio sets and other auxiliaries.

Before American workmen could build the Rolls-Royce engine, a ton-and-one-half of blueprints had to be redrawn and British workmen had to come over to Detroit to explain their shop practices. American blueprints are read just the opposite to the English. It was almost two years before the Americans could get into production on Rolls-Royce engines. Standardization would have saved that precious time when lives hung in the balance.

## Carried to Extreme

The Germans carried standardization to the extreme—everything from buttons to battleships. The British blockade of Germany in 1940 stopped the flow of spare parts from German civilian transport planes in South America, but the planes kept in the air, and the German airway companies continued to operate for some time because they were able to use stan-

dard parts which they obtained from German automobiles in the country. These parts, it is certain, did not come through the British blockade. But Nazi Germany established standards by decree and paid the price—for example, when they standardized their military planes too much and too soon.

The most eloquent plea for standardization I know was uttered in wartime. A U.S. Eighth Air Force Mechanic said bitterly: "We can't borrow plane parts from the British; we can't even steal them. They don't fit." Our own experience in the last war demonstrates that we worked best when industry was not only consulted in the development of the standards of the goods it was to manufacture, but also participated in decisions as to what the technical details of the standards should all be.

It is estimated that, if there had been unification of the American and British standard system of screw threads for World War II, the saving would have been \$600,000,000 and 2,000,000 tons of steel. If there is going to be a World War III, we are, at least, prepared with a unified screw thread standard by an agreement reached in Washington, in 1948, between the Governments of Canada, the United Kingdom, and the United States.

Industrial mass production, made possible by standardization was the Number One weapon in World War II, yet it is impossible to estimate the loss suffered in men, in time, and resources, because of lack of certain proper standards.

Few people outside the engineering field fully realize the actual part the standards are playing in simplifying and improving our way of life.

Canada has emerged from an agricultural country to an industrial nation overnight as it were. The real value of production of goods and services, that in terms of constant dollars, has more than doubled since 1938. In the same period we have acquired a million more workers in Canada.

Manufacturing in Canada employs more persons than agriculture, forestry, fishing, trapping and mining combined. Every record has its reasons. Every effect has its causes. There was, of course, the wartime impetus to production and now the threat of a new international conflict. But, there is, at least, one other basic factor behind Canada's outstanding industrial growth, which shows a larger increase over the past ten years than any other advanced country, and that factor is standardization.

What is a Standard?

Forget the broad meaning of the word.



and begin with a simple definition. A standard is a solution of a recurring problem. It is an agreement by authority, custom or general consent to a rule or model to be followed. "Like the one you got from you last time" is one of the world's oldest standards.

Whether we realize it or not, we are constantly guided by standards. Minutes and seconds are standards of time, money is a standard of exchange. Words are standards of communication.

Many of the accepted standards, from the height of an office desk to the size of men's ready-made clothing, have been arrived at largely by the gradual hardening of generally accepted practice—by the habit forming processes of our society. This is true whether the standard is for ways of doing things or ways of making things.

### Industrial Standardization

But, paralleling this haphazard accumulation of standards has been the science of modern industrial standardization. This is a conscious effort, with organized machinery to make things fit, make words have a common definition, make symbols mean the same thing in any drawing, and make uniform provisions for safety to life and limb.

Industrial standardization is essentially different from the so-called absolute standards of science—such, for example, as the unit of time. These absolute standards are absolute in a very real sense—they are ordinarily not subject to change with advancing knowledge.

Industrial standards, on the other hand, define our present state of knowledge and they live only so long as they continue to define adequately. As soon as they fail to so define, they are, for all practical purposes, dead as the extinct "dodo."

Now, the first reaction from an ordinary human being upon hearing the subject of industrial standardization introduced, would be one of skepticism toward something unfamiliar. As it is explained step by step and the advantages pointed out of interchangeability, low cost, safety, and greater availability and so forth, the individual gradually becomes aware of the great extent to which he, personally, has benefitted from standardization.

On this continent, all traffic saves life and limb by keeping to the right side of the road. All but the most headstrong of the rugged individualists start through a revolving door using the right hand side. Electric light bulbs will fit into any

socket in any part of Canada or the United States and in many other countries as well, by a simple twist of the wrist. Life has been made simpler. The standard of living has been improved. Standardization begins to take on a new importance, and soon he begins to feel that those responsible for standardization have been true to their trust and have been doing a good job.

The answer to the problem of standardization is not to be found in standards written by the manufacturer alone or by the consumer or by government agencies. Where then is it to be found? It lies not with one of them but with all of them. The solution lies in consensus. Where everyone is affected by standards, everyone should compile the standards. Every group substantially concerned—manufacturer, designer, distributor, seller, consumer, the government—should have the right to participate in deciding what the provisions of a standard shall be and none should

*(Continued on page 12)*

CSA Approvals Laboratories, in co-operation with its Head office, operated an Information Booth at the Canadian International Trade Fair this year, rendering services covering all divisions, carrying out inspections and assisting foreign exhibitors.





dominate the decision at the expense of another. For if a standard is to be of any value, it must be generally acceptable to all who use it. Industries, like people are most willing to abide by regulations which they set up themselves.

Such is the policy of the Canadian Standards Association.

Canada has more specifications and standards written for the electrical industry than for any other industry. This is not the case in other countries.

### Highest Per Capita Consumption

In the first place Canada leads the world in the per capita consumption of electricity, and secondly we have the Canadian Electrical Code.

We are proud of the Canadian Electrical Code which is the only Code in any nation of the world that has been produced by voluntary effort, as recommended good practice, and has won a position of national acceptance by force of law.

Canadian industry is indebted to the early pioneers who launched the Canadian Electrical Code. Barry Wilson, of St. John, N.B., agitated strongly for a Code, and those far-sighted men who were members of the first Special Committee of the CSA that was charged with the responsibility of investigating the need for such a Code. These were Professor Burr of McGill; Dr. W. P. Dobson, former Director of Research, Ontario Hydro, and now Research Con-

sultant to the Commission; Messrs. F. A. Cambridge, of Winnipeg; F. A. Gaby, Toronto, and A. B. Lambe and R. J. Durley of Ottawa. The first Code chairman in 1919 was A. A. Dion of Ottawa.

We pay tribute to these men and to the experts that represented the electrical industry on the many committees and sub-committees which labored so conscientiously and faithfully in bringing the Canadian Electrical Code to the point of general acceptance in Canada.

It was a long struggle and is a story in itself.

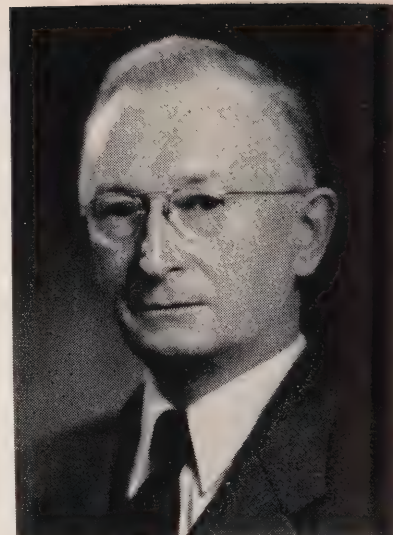
Electricity can be, and is, a deadly foe when out of control. Only through strict control of the use and installation of electrical equipment, is it possible to place this powerful agent in the hands of inexperienced people, both young and old.

There can be and are accidents and fires due to electrical causes.

Now in accordance with the BNA Act it's up to the Provincial Governments to look after the safety of their citizens.

How is this done in connection with electricity?

Accident and fire hazards are reduced to an acceptable and considerable degree through the application of the Canadian Electrical Code in all provinces of Canada. The electrical inspection authorities of the provinces use the Canadian Electrical Code as the basis of their inspection, and they have the last word in their own regulations. They are the



**DR. W. P. DOBSON**, former Director of Research, Ontario Hydro, and now Research Consultant to the Commission, who was member of first Special Committee which investigated need for Canadian Electrical Code. At present Dr. Dobson is a Director of CSA.

policemen of the Code and give it the force of law.

How did this important operation start?

Away back in 1910, John Young, a lad of eleven years, was lying in bed at Gravenhurst, during a thunderstorm with a light bulb on a flexible cord suspended over his head. He reached up and touched the socket and suffered such a severe shock that his left hand had to be amputated and his skull was literally burned through to the brain in two places.

The unfortunate boy got high tension through his head as a result of a primary voltage coming in on house service from a short in the transformer with the secondary ungrounded.

The people of Ontario also received a shock.

This is the well-known case of Young versus the Town of Gravenhurst, and came up before Mr. Justice Riddell of the Ontario Supreme Court.

In concluding his judgment, Mr. Justice Riddell said: "The very alarming state of the plant of the defendants said to be not at all unusual—if that the case there are thousands in danger of death or maiming—a state of affairs which calls loudly for legislative interference. The most ordinary regu-



**CSA Approvals Laboratories at 77 Fleet St. in Toronto** which houses facilities for testing electrical appliances and equipment.



for human life and limb seems to necessitate some measure of government supervision, and the most strict and searching official inspection."

This is a good example of how democracy works.

Mr. Wallace Nesbitt, a prominent Toronto lawyer, then President of the Canadian Niagara Power Company, got behind a movement for proper electrical supervision in the province and the case of John Young came up in the Legislative Assembly at Queen's Park.

Sir James Whitney was the Premier of Ontario at that time. He took action by sending instructions to Sir Adam Beck, and as a result of this accident, there was established in Ontario a system of electrical inspection and approvals, the rules and regulations being drafted in 1912.

### National Code

Later, in 1919, British and Canadian manufacturers of electrical equipment complained about the differences in the electrical inspection regulations in the nine provinces. Considerable confusion existed as to "how to make what for where." As a result, one of the first projects, undertaken by the Canadian Standards Association, was the development of a national code of practice for the wiring of buildings and installation of electrical equipment.

It all started in Ontario, but the other provinces gradually set up inspection acts and they too found that a laboratory was needed. They specified that approval must first be obtained from the HEPC Approvals Laboratory before sale and installation of equipment was permitted in their province.

As the Ontario Hydro Approvals Laboratory acquired an inter-provincial favor, important interests in Canada thought it advisable to place the laboratory testing certification and re-examination services under the authority of a national organization. This transfer to the Canadian Standards Association, a non-profit, non government, voluntary association, took place May 1, 1940, and provinces having electrical inspection acts changed them accordingly.

### Moved to New Location

After a 10-year trial period, in the fall of 1950, the CSA Approvals Laboratories

acquired its own building at 77 Florence Street, Toronto, was re-organized, and began its operation as an independent division of the Canadian Standards Association.

The Canadian Electrical Code and the Approvals Services, for electrical, as well as for oil-burning equipment, were now together under the jurisdiction of CSA, the oil-burner approvals service being transferred from the National Research Council at Ottawa at the same time.

The Canadian Electrical Code has been developed by the CSA as a national code of practice for the wiring of buildings and for the construction and installation of electrical devices of all kinds. It is the product of a group of CSA committees, in which electrical inspection authority of each of the provinces has a voice and strong influence. Consequently, the requirements of the Canadian Electrical Code are consistent with the accepted electrical practices in the various Canadian provinces.

One of the basic rules of the Code is that all electrical equipment and appliances that may come into the hands of the Canadian public must be tested and approved by the Canadian Standards Association and bear evidence of such approval in the form of a standard label or some other accepted marking. "Approval" means that such equipment has been tested or examined to determine that it is so constructed as to be reason-

ably safe for use by the Canadian consumer.

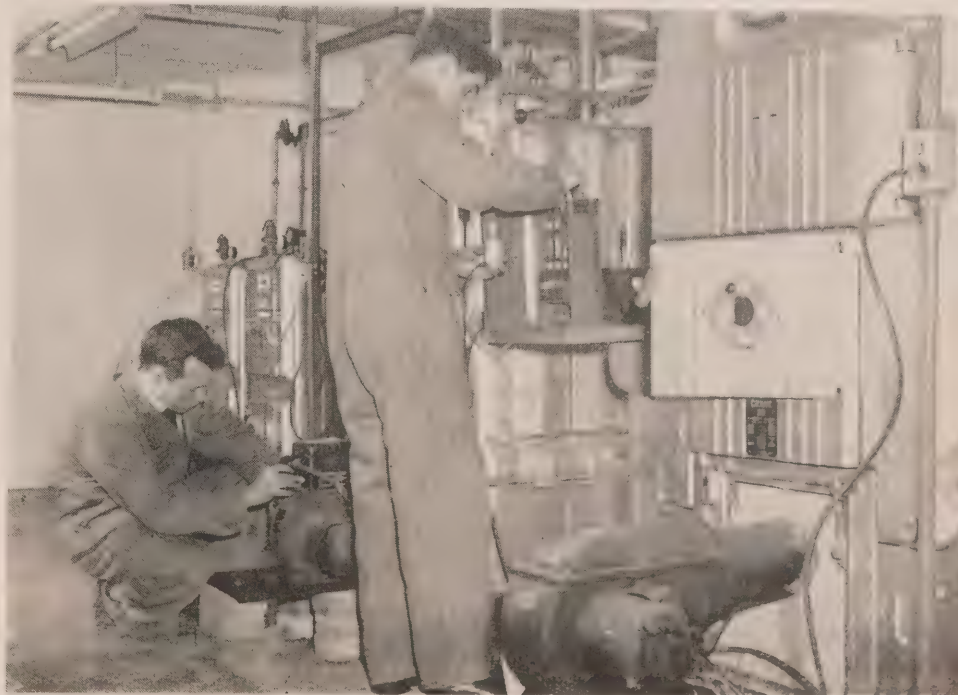
Manufacturers are required to submit typical samples of their device to the CSA Laboratories in Toronto where specified tests are carried out. If it is found to be free from hazards to life and property—that is, that shock to the operator or fire will not result, then the device may be marked as approved. All other items of identical construction produced by the manufacturer who has been granted approval may be similarly marked.

CSA inspectors visit the manufacturers' plants periodically to see that they are maintaining their production on the basis of the designs of the tested samples. If they fail to do so, the approval is cancelled and the labels are withdrawn. Since the provincial electrical inspector will look for the CSA mark as evidence of the "Approval," the absence of such marking would indicate to him that the equipment may be substandard, and its sale would consequently be prohibited by law. The manufacturer or contractor may be subjected to prosecution under provincial laws for breach of the requirements of the Canadian Electrical Code.

### Assurance of Safety

The CSA Label, the CSA Monogram, or the caption "CSA Approved," on the manufacturer's nameplate on any electrical appliance is reasonable assurance of

*(Continued on page 14)*



TESTING oil burners for fire hazards is an important part of work done at CSA Approvals Lab." This section was formerly located at National Research Council H.Q. in Ottawa.





**BENCH** for testing various ratings of fuses. Technician is reading temperature on the various parts of the fuse from mercury-bulb thermometers. Should one of the fuses blow, this fact can be recognized by indicating pilot lights, located beneath top test rack.

safety in the use of such an appliance.

The CSA Approval of an electric razor does not guarantee that the user will get a good clean shave; it means only that he is not going to be electrocuted under normal use.

However, there can be and there are accidents and fires due to electrical causes.

So what about today's hazards with electricity?

Where doubt exists as to the cause of a fire, the record invariably is entered as "due to electrical causes" (short circuits or faulty wiring).

In a press report on a fire in one Canadian city, this statement as to its origin actually appeared—"The cause of the fire is unknown as the building is not yet wired."

It has become a generally accepted fact that fires, loss of life and injury due to electrical causes would be at a much higher rate if it were not for the work of the CSA Approvals Laboratories. It is known that in a certain province where they do not have the same coverage on electrical inspection as they have in other provinces, fires due to electrical causes are one-third higher than the average for all Canada.

Reporting of accidents and fires on forms provided by the Laboratories is one of the means of keeping the CSA engineers up to date on field performance of devices and materials which they have

observed operating only in the Laboratories.

In addition, the dissemination of the information contained in the reports to the electrical inspection authorities across Canada is of invaluable assistance to those people who are endeavouring to tackle the overall accident and fire problems at the national level.

A man went swimming in front of his own summer cottage, touched the intake water pipe from the private pumping system and was electrocuted. The conductors in the connecting box were damaged at the time of installation to such an extent that the insulation was broken, and the intake pipe became alive. As the cottage was on solid rock, adequate ground was not available so the service was not grounded.

#### **Tool Not Grounded**

A man in Alberta picked up a portable electric saw to do a simple piece of cutting and received such a shock that he lost control of the appliance, and it came down on his leg, resulting in amputation.

The frame became alive on account of faulty electrical conditions within the tool. If it had been grounded in accordance with requirements of the Canadian Electrical Code, the accident would not have happened.

Another serious accident occurred in Western Canada last October. Only by a stroke of luck it would have proved

fatal and all caused by the disregard of one of the rules of the Canadian Electrical Code.

A woman was about to take a bath and she plugged in an electric heater into a combination wall light and outlet in the bathroom. The heater was placed on a chair beside the bath, and when stepping into the bath she knocked over the heater into the tub of water. When she received the electrical shock her right foot was in the water and her left hand on the cold water tap. She was thrown forward over the end of the bath with her left foot in contact with the heater and her abdomen resting on the bath taps. In falling, her left hand contacted the chain of the bath plug, causing the removal of the plug which let the water drain from the bath, thus breaking the electrical current caused by the energized heater in contact with the water.

The woman suffered third degree burns and is still confined to hospital.

From the foregoing remarks, it will be seen how our work affects our daily lives. Every time we flick on a switch, every time a factory workman puts into operation an electrically-operated machine, every time the housewife turns on her vacuum cleaner or the radio, goes to the movies, sends her child to school, CSA is standing guard through its nationally-accepted standards which ensure a reasonable degree of safety.

We believe that CSA Testing for Safety operates in the best interests of the Canadian people and of the electrical industry because of the fact that the CSA is truly autonomous and exists for the service of the citizens of Canada.

The unique all-Canadian CSA Approvals Laboratories are developing, improving and maintaining standards of safety which are second to none in the industrial world.

There are many reasons for these safety standards. The most important of all is the voluntary contribution made by industry, with its aggressive spirit, expert advice, and strong friendly teamwork. We, on our part, provide the services of co-ordination and endeavour at all times to live up to the principle of consensus.

Standardization makes life a lot less complicated.

Remember the words of George Washington: "If, to please the people, we offend what we ourselves disapprove, how can we afterwards defend our work? Let us raise a standard to which the wise and honest can repair. The event is in the hand of God."





DEEN interest in the significance of the St. Lawrence Project was displayed by the Cleveland visitors as they heard H. D. Rothwell, Hydro's St. Lawrence Liaison Engineer (holding pointer), and J. B. Bryce, Hydraulic Engineer (extreme left of group), explain scope and engineering details of development.

# Cleveland Studies Toronto



CLEVELAND Chamber of Commerce representatives, left to right, Chas. Stewart, Tom Peterson, Cruise Committee Chairman; Morris Bradley, Philip Schloss, and M. L. Fisher, examine map of Toronto Harbour.

INDICATING by their penetrating questions, the deep interest they have in the proposed, but long-delayed St. Lawrence Seaway and Power Project, a party of prominent Cleveland citizens recently visited the Commission's large scale model of this great development, currently accommodated in the Hydro Building at Toronto's C.N.E. grounds.

The U.S. visitors were part of a contingent of 350 Cleveland business and civic leaders who arrived in the Queen City under the sponsorship of the Cleveland Chamber of Commerce aboard the cruise ship "S.S. South American" for a combined fact-finding and pleasure trip.

Members of the party, during inspection of the St. Lawrence model, heard H. D. Rothwell, Liaison Engineer, St. Lawrence Development, and J. B. Bryce, Hydraulics Engineer, Generation Department, Ontario Hydro, describe the far-reaching benefits and engineering features of the project. In addition, the guests were treated to a brief but comprehensive description of Toronto's Harbour, and the significance of the St. Lawrence Seaway to Toronto as an inland "seaport," by E. B. Griffith, General Manager and Secretary of the Toronto Harbour Commission.

While this particular group was study-

ing this significant aspect of Toronto's, and, in fact, Canada's progress, other sections of the Cleveland group were hard at work discussing parks and recreation; industrial promotion; health and welfare; education; regional planning, while the new subway and transportation problems received specific attention. Terming the trip "immensely valuable," Mayor Thomas W. Burke, of Cleveland, in bidding farewell on behalf of the visitors, complimented the city officials on their intelligent approach to the numerous civic problems. He was, in fact, quoted as saying: "This city is in the big league!"



A. M. E. U.

## TECHNICAL CONFERENCE

**Sessions Feature Reports on System Design, Interpretation of Rates and Frequency Standardization Program**

**"E**VERYTHING you do to create a more efficient organization is another contribution to the economic life of the Province of Ontario!"

The foregoing salutation was addressed to members of the Association of Municipal Electrical Utilities of Ontario by W. Ross Strike, Q.C., Second Vice-Chairman, Ontario Hydro, at their annual Technical Conference this year.

Held at Bigwin Inn, Lake of Bays, the conference was rated a signal success from start to finish—both from the point of attendance (approximately 250 registrations), as well as from interest in the comprehensive reports and discussions which highlighted the two-day gathering.

Participating in the opening phases of the conference, J. A. Williamson, Niagara Falls, General Program Chairman, and



**CAUGHT** against a sylvan setting these delegates, including Robert Butter, Owen Sound; J. G. Sutherland, Hamilton; Sam Murchie and George Unger, Brantford Township; and A.M.E.U. President Norman Grandfield, Galt, and Clayton Leach, Chatham, enjoy a

A.M.E.U. President Norman Grandfield, of Galt, made brief addresses keynoting the exhaustive sessions that were to follow, while Mr. Strike extended greetings to the delegates on behalf of Ontario Hydro.

### Discuss Reports

First session, with G. R. Davis, of Ottawa, presiding, featured reports of the A.M.E.U. Sub-committees on "Distribution Design," by A. L. Furanna, of London, and "Underground Construction" by D. P. Herring, of Sarnia.

Both reports were distributed in printed form in advance to the delegates, serving as the basis for guided discussions led by Mr. Furanna and Mr. Herring, and members of their respective sub-committees.

After luncheon a large audience heard A. W. Murdock, Rates Engineer, Ontario Hydro, discuss final revisions of the "Standard Interpretation of Rates," as developed by the A.M.E.U. Rates Committee for ratification by the A.M.E.U. Executive and Ontario Hydro.

**PRE-SESSION** discussion engages interest of Guy Parker, Ontario Hydro; Norman Grandfield, Galt; R. S. Reynolds, Tom Howard and Clayton Leach, all of Chatham, and H. H. Leeming, Ontario Hydro.



**AFTER** extending Ontario Hydro's greetings, Second Vice-Chairman W. Ross Strike, right front, sat down to listen to a paper which drew rapt attention from A. W. Taber, R. B. Chandler and rest of group.





At this session, Lt. Col. A. A. Kennedy of Owen Sound, newly-appointed President of the O.M.E.A., was introduced by D. P. Cliff, Secretary-Treasurer, and warmly applauded by the delegates at the conclusion of a brief address during which he extended greetings from his organization.

### Buffalo Speaker

Highlighting the third session was a discussion-provocative address\* by T. J. Brosnan, Division Engineer, Niagara-Mohawk Power Corporation, Buffalo, N.Y., on "Distribution Design for Urban Areas."

Expressing the belief that "for every dollar invested in new generation and bulk-power transmission, there will be another dollar invested in load-area dis-

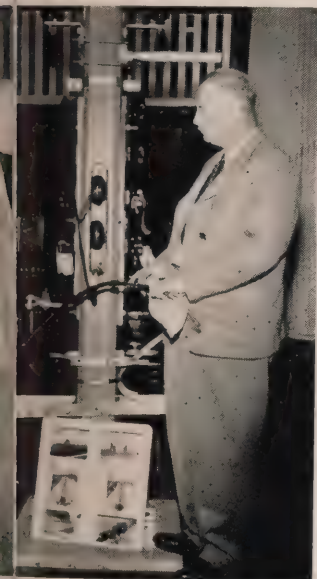
### Initial Transformer Station

Originally the entire 23-kv. supply came from one main transformer station at one corner of the system. When loads increased another major transformer station was built in a diagonally opposite corner of the system. The original 23-kv circuits were subdivided and portions were transferred to the new station. Switching equipment was installed to provide emergency inter-connection of the 23-kv circuits supplied by the new transformer station with those supplied by the older station. With further load increases other transformer stations are either being constructed or planned with a consequent further sub-division of circuits in prospect.

At the same time load increases have

Referring to the flexibility of the Buffalo system, which, he said, was due "largely to the arrangement of the 4,160-volt distribution feeders," the speaker stated that the entire feeder system is provided with sectionalizing equipment at reasonably frequent intervals, and with emergency tie facilities between feeders as frequently as economic design permits.

Turning to the question of overhead and underground circuits, the speaker informed his audience that his system was committed to the removal of poles and wires from four miles of streets in Buffalo each year. This program, he pointed out, results in a continuing major annual alteration of the city's 4,160-volt system, and emphasizes the need for flexibility in the basic design of the system.



J. WOELFLE and E. F. BURBANK  
Toronto Hydro-Electric System  
Construction and Street Lighting"



W. ROY HARMER  
Ontario Hydro  
"Frequency Standardization"



T. J. BROSNAN  
Niagara-Mohawk Power Corporation  
"Distribution Design for Urban Areas"

tribution," Mr. Brosnan dealt primarily with the importance of basic plans for urban distribution.

In this connection, he cited the distribution system of the City of Buffalo, N.Y., as an illustration.

It was found, he said, that the lowest overall cost of distribution could be achieved by the use of small automatic substations, each serving a territory of about one square mile and each substation consisting initially of three, 2,500-kva units, with provision for two additional units. The 23-kv. circuits, supplying these substations, were arranged in groups of three initially, with provision for five cables at a later date.

necessitated installation of additional substations from time to time, although most of the load growth has been handled by adding fourth units at existing substations.

### Radial-type Systems

Dealing with types of systems, the speaker pointed out that Buffalo had chosen a radial-type distribution system, rather than a primary network system, due to its ability to completely control the amount of load on each substation unit under all conditions of operation.

"The merit of this arrangement has been proven very conclusively in the past few years," he stated.

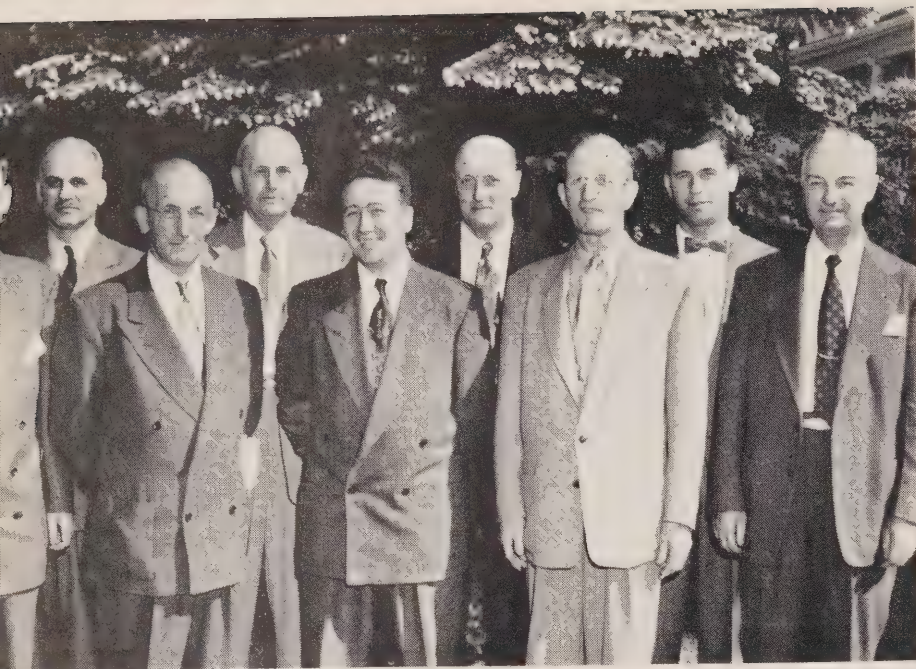
### Economic Design

In order to achieve an economic design of distribution, the Niagara-Mohawk Corporation followed a definite program:

Each year a review is made which explores the loading of each part of the system during the peak-load period of the previous year. It is then determined what substation capacity will be added and at what locations; what load transfers will be made from one station to another; what distribution circuits will be relieved and by what means; what rearrangement of 23 kv circuits will be made. This program is worked out in detail for the year ahead. In addition the five-year plan for

(Continued on page 20)

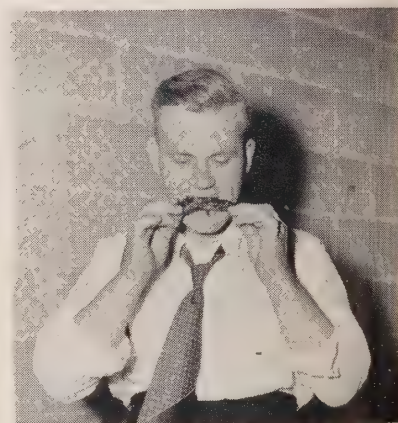




◀ Elected to the executive for the ensuing year were: Front row, left to right, C. V. MacLachlan, Waterloo, Secretary; Reg. Phillips, Brantford, Gordon Stacey, Guelph, Vice-President; Otto Reiber, Waterloo, President, and S. G. Steiss, Kitchener. Back row, l. to r., W. D. Stalker, Simcoe; F. W. Vogt, Hamilton; Aaron McKnight, Port Dover, and Verne Snider, Hamilton, Directors.

## Meet At New Hamburg

ELECTION of officers featured the spring meeting of the Grand Valley Metermen's Association at New Hamburg, June 10. Guest speakers were R. D. MacKimmie, Packard Electric Company Limited, who presented a paper entitled "Design Problems in Developing a Single-Phase Watthour Meter," and Lionel Blaker, Ontario Hydro, who discussed "Meter Shop Practices." One of the outstanding events of the meeting was the excellent, German-style dinner served in the New Hamburg Community Memorial Hall by the Women's Auxiliary. The dinner included spare-ribs and pigs' tails. Presiding was Otto Reiber, President of the Association, who extended thanks to the members of the New Hamburg Public Utilities Commission for their hospitality, and complimented citizens on their community spirit in erecting a modern community hall and arena. Members of the 1953-54 executive are shown in the upper photo.



▲ CHARLES Daniels, New Hamburg, found a quiet corner in which to enjoy the delectable German-style meal, including pigs' tails.

DELEGATES found the meeting-room in New Hamburg without difficulty by following novel directional signs designed by Chairman C. K. Merner, right, shown with two fellow-townsmen, A. H. Roth and "Kelly" Honderick. ▶





# CO-OPERATIVE FIRE INSURANCE

**DISTRICT 5 O.M.E.A. DELEGATES DISCUSS  
POSSIBILITY OF INAUGURATING PLAN SIMILAR  
TO PRESENT PUBLIC LIABILITY SCHEME**



**GUEST speaker at District 5 dinner was Rev. K. Huntley Palmer, Port Dover cleric, who delighted audience with world travel stories.**

**C**O-OPERATIVE fire insurance for municipal Hydro commissions and public utilities in Ontario was the main topic of discussion at the spring meeting of District No. 5, O.M.E.A., June 17. This was the first District 5 meeting in four years at the quaint and picturesque fishing port and summer resort of Port Dover.

The fire insurance discussion was introduced by H. O. Hawke, of Galt, during the afternoon business session held in the comfortable quarters of the Port Dover Fire Department building. A lively discussion period featured consideration of the plan which, it was pointed out, would be co-operative in its scope, similar to the public liability insurance now

carried on a co-operative basis by Hydro cost municipalities.

O.M.E.A. Secretary-Treasurer D. P. Cliff was asked to review the public liability plan in effect at present for the delegates. Mr. Cliff, in his summary stated:

"We could not obtain a lower premium for public liability insurance on a co-operative basis than we have at present. Premiums are collected by Ontario Hydro through a charge for this item in the cost of power. It is then presented to the insurance company in a lump sum once a year."

"It has worked out admirably," he concluded.

Delegates approved a motion recom-

mending that provisions of the proposed fire insurance plan be promulgated to all O.M.E.A. district associations and if a favorable reaction is received, a committee will be named to make a report at the next annual meeting of the parent body.

## Problems Discussed

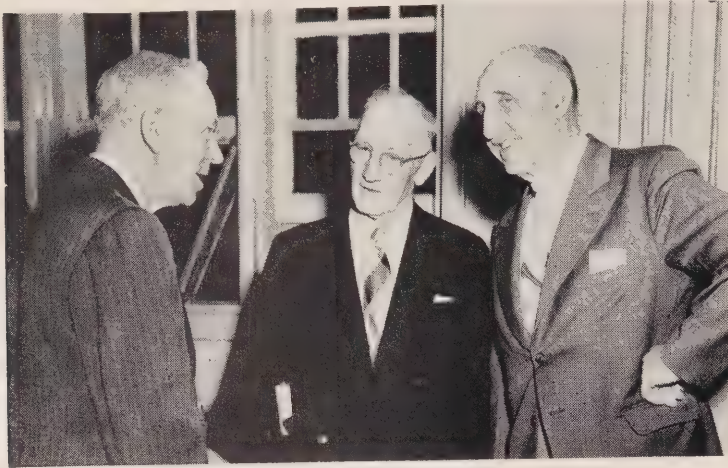
Under the chairmanship of Dr. Fred Barron, Paris, aided by Second Vice-Chairman William Watterson of Welland, and Secretary-Treasurer George Boucher, Paris, delegates debated at considerable length on the question: "Should the P.U.C. charge a deposit to an owner or tenant; if so, how much?" After careful consideration, delegates approved the following resolution: "That the matter of consumers' deposits be brought to the

*(Continued on page 20)*



**ROUND TABLE** conference group includes J. M. Hare, Port Dalhousie; J. S. Sherk, Port Colbourne; H. O. Hawke, Galt, and J. A. Williamson, Niagara Falls.





EXCHANGING jokes on the Scotch and Irish were J. C. Halliday, and Frank Roach, both of Thorold, and R. A. Rennie, Port Dalhousie.

attention of the H.E.P.C. at the next joint meeting of the O.M.E.A. Executive and the Commission with a view to getting legislation to cover same."

A report dealing with the findings on "wages" by the O.M.E.A. and A.M.E.U. Special Committee of District No. 5 was presented by F. R. Kaupp, Chairman, Merritton Hydro-Electric Commission. The report of this committee, formed

following the resolution passed at the District 5 meeting last February, dealt with the overall wage picture across the province.

Following the social hour in the games room of the Port Dover Fire Department, dinner was served at the Legion Hall, with Reverend K. Huntley Palmer of Port Dover as guest speaker.—By W. B. Prentice.

ADMIRING a trophy in the Port Dover Fire Department social room were these five delegates, left to right: C. E. Kirkby, Woodstock; J. R. Weare and H. E. Brownhill, Stamford Township; George F. Unger, Brantford Twp. Commissioner, and Wm. Newitt, Dundas.



## TECHNICAL CONFERENCE

(Continued from page 17)

the area is reviewed each year and is modified as seems desirable.

These plans are prepared by the combined efforts of the Engineering and Operating Departments. They are issued as a formal report which is placed in the hands of all who supervise design, construction and operation.

Mr. Brosnan's address was followed by another full period of discussion as was the subsequent report of the sub-committee on "Overhead Construction and Street Lighting" led by E. F. Burbank and E. J. Woelfle, Toronto Hydro.

### Frequency Standardization

Fourth and final session was devoted to a panel discussion on "Frequency Standardization," led by W. Roy Harmer, Consumer Service Engineer, Frequency Standardization Division, Ontario Hydro.

In his introductory remarks, Mr. Harmer reported:

"With four years of experience behind us, and over one-third of the program completed, we are now able to set our sights on the completion of this vast standardization program for early in 1961."

During his address, Mr. Harmer also reviewed minor changes made in the "Policies and Procedures" laid down for the frequency standardization program at its outset in 1949. In making reference to these changes, Mr. Harmer indicated the necessity for such amendments and the advantages which had accrued since they had been effected.

### Finish in Simcoe Area

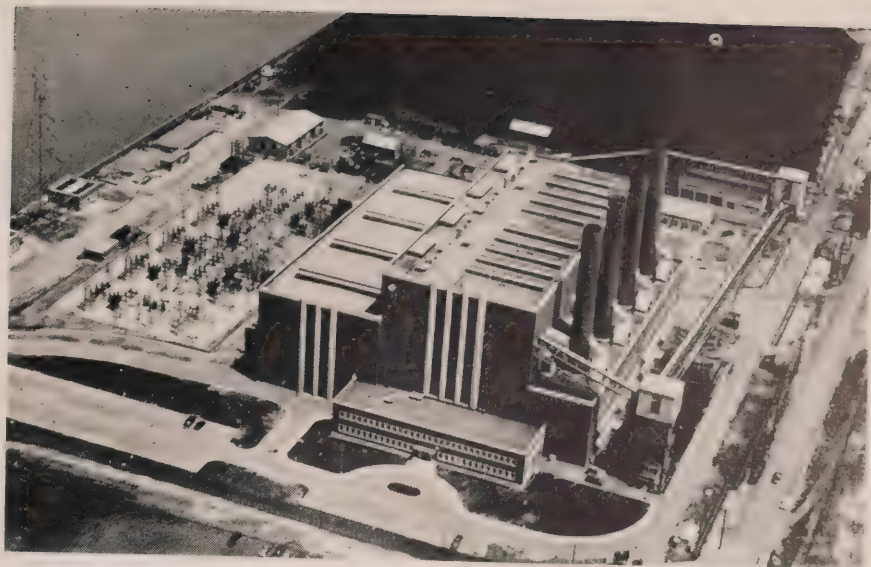
Another highlight of Mr. Harmer's address was his illustration, by means of a colored map of the Commission's Southern Ontario System, of the progress of the program to date, and of the schedule for the areas yet to be standardized.

Warning that all schedules were subject to change, particularly in respect to those areas not due for changeover for several years, the speaker advised that "the program will wind up operation it is anticipated, with the completion of the Simcoe area early in 1961."—By B. I. Graham.

\*Copies of Mr. Brosnan's address reported on page 17 are available. Apply to W. R. Mathieson, Secretary-Treasurer, A.M.E.U., Room 1112, 620 University Ave., Toronto, Ont.



# ALONG HYDRO LINES



Aerial view of Hydro's Richard L. Hearn Steam Generating Station on the Toronto waterfront.

## FOURTH UNIT COMPLETED AT RICHARD L. HEARN STATION

**F**OURTH unit at Ontario Hydro's Richard L. Hearn Steam Generating Station in Toronto—largest plant of its kind in Canada—is now delivering power into the Commission's Southern Ontario System. Its operation marks completion of the four-unit installation authorized for this station which was officially opened in October, 1951.

The station now has two units operating at 25 cycles and two at 60 cycles. As Hydro's frequency standardization

program moves forward, the 25-cycle units will eventually be converted to the higher frequency, giving the station a four-unit installed capacity, at 60 cycles, of 536,000 horsepower.

### Rapid Progress at Windsor

Rapid progress is also being made towards completion of the 354,000-horsepower J. Clark Keith Steam Generating Station in Windsor, where the fourth and final unit is being readied for service in November of this year. This station, which operates entirely at 60 cycles, was officially opened in November, 1951. The Toronto and Windsor steam stations, with their ultimate combined capacity of 890,000 horsepower at 60 cycles, form part of Ontario Hydro's record expansion program, embracing 14 new power sources between 1945 and 1956. In this 11-year period, the Commission's dependable peak capacity will have increased by 124 per cent to a total of 5,807,600 horsepower. With power now being received from 13 of the new sources, work is proceeding rapidly on the 1,200,000-horsepower phase of the Sir Adam Beck-Niagara generation station No. 2 which is scheduled for initial operation during 1954.

Because of the relatively high cost of steam plant operation, compared with the operation of hydraulic resources, the Richard L. Hearn and J. Clark Keith Stations are being used chiefly during peak periods to ensure continuity of service to Hydro customers.

### Paris Commission Plans Extensions

Extensions and improvements to the electrical distribution system in 1953, and for a 1,000-kva municipal substation to be completed in the fall of 1954 at a total cost of \$21,000 have been announced by Chairman G. L. Foulds, Paris Public Utilities Commission.

### Port Elgin To Build New Headquarters

Ontario Hydro has approved the expenditure of \$10,000, from available funds, for the construction of an office and stores building by the Port Elgin Hydro-Electric Commission, Chairman W. R. Tomlinson announced recently.

Plans call for the erection of a one-storey concrete structure, approximately 60 feet by 40 feet in dimension. Mr. Tomlinson stated that the necessary construction force will be hired locally.

### Extend Hydro Service in Toronto Township

Plant additions, including two municipal substations, four substation sites, and improvements to the electrical distribution system this year at a cost of \$485,18 have been approved, it was announced recently by G. D. Pattinson, chairman of the Toronto Township Hydro-Electric Commission. A portion of the money for these purposes will come from surplus earnings.

Approval has been given to the Corporation of the Township of Toronto's request for a debenture issue in the amount of \$450,000 to assist in financing this program and also for a bank loan in the amount of \$100,000 to provide immediate funds until such time as the debentures have been issued.

In addition, Ontario Hydro has given assent to the installation of three-phase station metering at the Birchview municipal station at a cost of \$1,500 chargeable to the Toronto Township Hydro-Electric Commission.

### Plan Extensions to Almonte System

Extensions and improvements to the electrical distribution system this year by the Almonte Public Utilities Commission in the amount of \$5,500, to be financed from available funds, have been announced by Chairman Louis Peterson.



## HARDY HEADS DOMINION ENGINEERS



R. M. HARDY

**R** M. HARDY, P.Eng., Dean of the Faculty, and Professor of Civil Engineering at the University of Alberta, has been elected President of the 30,000-member Dominion Council of Professional Engineers, at the council's 16th annual meeting at Edmonton. He succeeds R. M. Richardson, P.Eng., of Saint John, N.B.

Dean Hardy, 46, has been with the University of Alberta since 1930. He is one of Western Canada's foremost engineers on soil mechanics and foundations and is also an expert in highway construction. A native of Winnipeg, he is a graduate of the University of Manitoba in civil engineering. He also took post-graduate engineering training at McGill and Harvard universities.

Some 800 professional engineers from all parts of the country attended the convention which saw W. L. Sagar, P.Eng.,

Professor of Civil Engineering, University of Toronto, elected Vice-President. Prof. Sagar is also Vice-President of the Association of Professional Engineers of Ontario. New Executive member is R. F. Shaw, P.Eng., Vice-President of the Foundation Co. of Canada, and 1953-54 President of the Corporation of Professional Engineers of Quebec.

J. Murray Muir, P.Eng., Registrar of the Association of Professional Engineers of Ontario, succeeds Leopold Nadeau, P.Eng., of the Quebec Corporation, as Secretary. Mr. Muir will serve in that capacity for a two-year term.

One of the speakers, John Coleman, President of the National Society of Professional Engineers, U.S.A., said it "was encouraging to find that the problems discussed at the convention were similar to those being discussed in the U.S." It was encouraging, he added, because it indicated that professional engineers on the entire North American continent all seemed to be heading in the same direction.

The National Council of Canadian Universities, in a letter to the Dominion Council, stated it would like to consider the Council as the body with whom matters concerning the engineering profession could be discussed.

Other matters discussed at the meeting included: legislation, public relations, engineers coming into Canada from other countries, citizenship clauses in licensing laws, relations between professional engineers and architects, and the transferring of memberships from province to province.

The 17th annual meeting of the Dominion Council is scheduled to be held next year in Toronto.

### Build New Substation To Meet Load In 1954

Scarborough Township Public Utilities Commission will spend \$80,000 on construction of a 5,000-kva, bungalow-type substation in the Wexford area of the municipality to meet anticipated load in 1954. Chairman A. O. Leslie has announced. The expenditure is to be financed from the proceeds of a debenture issue.

Approval was also given to the Scar-

borough Township Public Utilities Commission's request for Ontario Hydro to assist in the design and construction of the new substation, and to supply all material, except the transformer and metalclad switchgear, the costs to be charged to the local utility.

This substation is located in the area now served from Ontario Hydro's rural system, but is to be supplied after January 1, 1954, by the Scarborough Commission, as permitted by recent legislation, Mr. Leslie added.



R. H. MARTINDALE

Veteran Secretary-Manager of Sudbury Hydro Commission who retired from this position on August 1 after 51 years' outstanding service in charge of the city's Hydro and water services. Mr. Martindale will be retained by the Sudbury Commission as consulting engineer with Hugh McKinnon succeeding him as new Manager-Secretary. Sudbury's senior civic employee, Mr. Martindale was A.M.E.U. President last year and has taken an active part in the Association of Professional Engineers of Ontario, and the Canadian Section of the American Water Works Association. Further reference to his retirement will be made in a future issue.

### Oakville Purchases Two Substations

Oakville Public Utilities Commission will expend \$250,000, to be financed from the proceeds of a debenture issue for plant additions, including the purchase of Oakville Distributing Station No. 1 and No. 2 from Ontario Hydro and for extensions and improvements to the electrical distribution system this year.

### PRESS PRAISE

The bouquet of the week goes to Ontario Hydro's Rural Operating Office Building and premises in Winchester. The smart appearing, modern stone structure, the neatly trimmed lawns and flower beds, and the unique floodlighting display at night, all make up part of the attractive picture presented to the townspeople and passing motorists. From "Editorial Notes"—The *Winchester Press*—June 11, 1953.



**St. Catharines Plans  
New Office Building**

Purchase of a site for the erection of new office building, service building and garage will be undertaken at an early date by St. Catharines Public Utilities Commission. Funds for this expenditure, as well as to meet the cost of improvements to the electrical distribution system carried out last year and planned for the current year, totalling \$603,562, will be provided by a debenture issue and use of available assets.

**Chatsworth Combines  
Secretary-Treasurer Post**

Office of Treasurer has been abolished at Chatsworth Hydro-Electric Commission. C. A. Cameron, Secretary of the local commission since 1941, has been appointed Secretary-Treasurer.

**Kincardine Increases  
System Voltage**

Kincardine Public Utilities Commission recently carried out a major voltage changeover program involving a step-up from 2,200 to 4,000-volt service for the town. The changeover was effected on June 7 with men from Southampton, Port Elgin, and Wingham systems, and Wingham Rural Operating Area assisting the Kincardine staff. The increased voltage will eliminate fluctuations during peak load periods.

**Sarnia Plans  
New Lighting**

Sarnia is pushing ahead with an overall plan to improve lighting on several main thoroughfares and on some side streets. Sarnia Hydro-Electric Commission has recommended use of mercury vapor lighting and 30 brackets for this purpose, which can be fitted to existing posts, have been ordered. It is expected that initial cost of the new system will be approximately \$10,000, and will substantially raise the level of illumination intensity over that provided by the present old-style ornamental fixtures.

**APPROVE EXTRA LIGHTS**

Ottawa Hydro-Electric Commission has approved the placing of 250 more street lights at various points throughout the city. The schedule of new lights is subject to approval of the board of control.

**Owen Sound Needs  
New Substation**

With the system reaching all-time peaks in power consumption, Owen Sound Public Utilities Commission will soon have to consider construction of an additional substation to handle the increased load, Manager Robert Butter informed the commission at a recent meeting. The Owen Sound Manager said the new station should be completed within two years to allow a reasonable margin of reserve capacity.

**Apply For Permission  
To Issue Debentures**

Niagara-on-the-Lake Town Council has applied to the Ontario Municipal Board for permission to issue debentures valued at \$32,000 to provide funds for the erection of a new municipal substation as well as extensions and improvements to the local distribution system.

**COMING EVENTS**

- SEPTEMBER will be a busy month for many people particularly members of the O.M.E.A. and A.M.E.U. who will be attending district meetings at various points throughout the province. Actually the schedule starts in August and continues until the latter part of the next month as follows:
- August 27 and 28—Thunder Bay Municipal Electric Association Meeting at Dryden.
  - Sept. 8 and 9—Georgian Bay Municipal Electric Association Meeting at Collingwood.
  - Sept. 16 and 17—Eastern Ontario Association Meeting at Gil-Mar Lodge, Lindsay.
  - Sept. 23—A.M.E.U. Accounting and Office Administration Meeting at Hotel London, London.
  - Sept. 29—District No. 6, O.M.E.A. Meeting at Stratford Country Club, Stratford.



MARKING an important anniversary in Ontario's public power enterprise, Charles C. Rathgeb, President of Canadian Comstock Company Limited, presented 48 yellow roses to the Commission recently. The presentation commemorated the 48th anniversary of the formation of the Hydro-Electric Power Commission of the Province of Ontario by an Order-in-Council, dated July 5th, 1905, to study the possibilities of future power development in the Province of Ontario. As a result of the report of this original Commission, headed by the late Sir Adam Beck, The Hydro-Electric Power Commission of Ontario came into being under the provisions of an Act approved in May, 1906. On hand for the presentation were, left to right, H. H. Leeming, Director of Frequency Standardization; Hon. George H. Challies, First Vice-Chairman; Mr. Rathgeb, Dr. Richard L. Hearn, General Manager and Chief Engineer; Dr. Otto Holden, Assistant General Manager-Engineering, and Chairman Robert H. Saunders.





## WESTON COMMISSION HONORS RETIRING EMPLOYEES

**R**OBERT GREER AND JAMES SUMMERHAYS, veteran employees of Weston Public Utilities Commission, were honored during a recent retirement ceremony held in the Weston Commission's offices.

In recognition of their long and devoted service representing a total of 76 years, the two men were presented with portable radios. A. G. Peirson, P.Eng., former Superintendent who retired last September, made the presentation.

Mr. Greer, first employee of the Weston Commission, began work with the Stark Power Company which was acquired when the local commission was formed in 1910. Electricity at the original plant was generated by steam at 60 cycles, and later changed to 25. Weston will soon change back to 60 cycle (1954), when Ontario Hydro's frequency standardization program gets underway in that municipality.

Mr. Summerhays, former Bell Telephone Company employee,

started with Hydro in 1921. For many of his 32 years service, he, with Mr. Greer and Alexander Ross, another veteran employee, carried on all the outside work. Mr. Summerhays is an excellent marksman having won many trophies for skill with the shotgun.

Mr. Peirson, during his presentation remarks, highlighted the growth of the local commission and paid tribute to the fine qualities of the two retiring employees who had contributed to this development. Commissioner C. M. Richardson stated that few municipalities have had the services of such capable and loyal employees.

Pictured above during the presentation are, front row, left to right: Mr. Summerhays, Mr. Greer, and Mr. Peirson, making the presentation. Back row, l. to r.: V. G. Bussey, Commissioner, C. M. Richardson and E. R. Hassard, Chairman Bruce Pollard, Mayor R. C. Seagrave, Vice-Chairman W. A. McArthur and Superintendent and Secretary-Treasurer, S. R. Greenwood.

### Toronto Regulates TV Antenna Erection

Toronto is believed to be the major first Canadian municipality to pass a by-law to license and regulate the installation of TV antennae. Aimed at making the erection of such equipment as safe as possible, the new bylaw, which is expected to set a pattern for other Canadian cities, was drafted by Buildings Commissioner K. S. Gillies in consultation with the Canadian Standards Association.

A license fee of \$50 per year (\$25.00 after the first half of the year) will be charged to persons or firms engaged in such work, while plans must be submitted for all installations, 15 feet or more above the house, with approval of these plans costing an additional \$2.00. A penalty

of up to \$50.00 has been set for each offence against the provisions of this bylaw.

### Stamford Plans New Warehouse, Improvements

Plans for a new \$40,000 warehouse are being completed by Stamford Township Public Utilities Commission. The new building, which will be 70 by 50 feet, is part of a current expansion program which will cost approximately \$200,750. Plans also call for improvements and extensions to the electrical distribution system, and new equipment. Costs of these improvements will be defrayed by a \$100,000 debenture issue and available funds.

### Guelph Plans Advance 60-Cycle Substation

Guelph Board of Light and Heat Commissioners is planning installation of temporary substation structure and permanent line facilities to supply 60-cycle power to 380 new homes to be built in the immediate future. The new facilities are also designed to handle service to an additional 500 homes proposed for construction before general frequency standardization operations start in Guelph. This will avoid large expenditures for new customers and the Guelph Commission at a later date.

Little boy (to sister after taking a whiff from her perfume bottle). "You mean you smell that way on purpose?"



# A VETERAN RETIRES

Perth's R. J. Smith, pioneer in public utility field, hands over reins after more than a half-century of service to the Eastern Ontario municipality



CHAIRMAN Dr. J. L. Walsh, second from right, presents scroll to retiring Manager, second from left, with Commissioner Charles Walsh left, and Mayor John Pennett, right, looking on.

RETIRING after 56 years of devoted and distinguished service to the community, R. J. Smith, Manager and Secretary-Treasurer, Perth Public Utilities Commission was presented with a hand-illumined scroll during a recent testimonial retirement dinner tendered in his honor by the local commission members. He was also the recipient of a fine fishing outfit, accompanied by "sincere wishes for an enjoyable and pleasant future."

Born at Perth in 1877, the veteran utility manager was educated at local public and secondary schools and at Ontario Business College in Belleville.

## Started Career in 1897

On August 4, 1897, he started work on the installation of the town's waterworks system, heading the system as Manager when it was completed.

During the following year, the waterworks company purchased the assets of the Tay Electric Company, changing its name to the Canadian Electric and Water Power Company. Two small plants were constructed on the Tay River, a short distance above Perth. These two plants generated two-phase, 133-cycle power for Perth's general lighting requirements and operation of the municipal water system pumps.

In 1918 when the town acquired the plants, Mr. Smith became Manager of local Hydro and waterworks departments, serving continuously since that time.

In addition, he has been active in other

organizations, including Perth Board of Education, having been a member for 17 years, as well as Secretary of the local public library board for five years, and Founder and Secretary-Treasurer of the Perth Museum, Incorporated. He is also a charter member of the local Rotary Club.

## Long Service Recognized

A Past President of the A.M.E.U., he has the distinction of being the senior member of the Canadian Section of the American Water Works Association, having joined the parent group at New York in 1911. The Canadian Section was formed in 1920.

At the annual banquet of the Canadian Section in Montreal last year, Mr. Smith and R. H. Martindale, retiring Manager-Secretary of the Sudbury Hydro-Electric Commission, were presented with silver trays in recognition of their long and distinguished service in the field of municipal waterworks development and management.

Held at the Links O'Tay Golf Club, Perth, the recent complimentary dinner was attended by over 40 close friends and colleagues, including civic and Ontario Hydro representatives. Greetings were extended by Mayor John Pennett. Perth Chairman, Dr. J. L. Walsh, served as Master of Ceremonies.

W. Ross Strike, Second Vice-Chairman, Ontario Hydro, paid tribute to Mr. Smith, and many other Hydro pioneers, who have helped Hydro grow from an infant with a peak capacity of 7,420 kilowatts to its present stature of over 3,250,000 kilowatts, serving 1,317,249 ultimate customers.

## Daily Efficient Service

"Achievements such as these would have been impossible without those men throughout the Hydro system who, by their daily efficient service, have contributed to this record."

Mr. Strike also eulogized Mr. Smith's

(Continued on page 28)



MR. SMITH proudly demonstrates use of angler gift, a new casting rod and reel, to a long-time friend, Dr. E. H. Wilson. Other admirers are Perth P.U.C. Secretary-Treasurer, Mr. Tena Harvey and his daughter, Elspeth.



# "- WITH JUSTICE AND EQUITY"

## HON. GEORGE H. CHALLIES OUTLINES GUIDING PRINCIPLES TO BE FOLLOWED IN HANDLING ST. LAWRENCE DEVELOPMENT

**P**ICTURESQUE Rideau Ferry Inn, near Smiths Falls, was the setting for the second annual A.M.E.U. Eastern Division Accounting and Office Administration Conference, with some 145 delegates from Eastern and Central Ontario points attending the two-day meeting, June 18-19.

Highlight was the luncheon address by Ontario Hydro's First Vice-Chairman, Hon. George H. Challies, while supporting speakers in the preceding sessions rounded out the successful meeting by their informative and interesting talks. General Chairman in charge of the conference was George A. Phillips, Jr., Smiths Falls.

Mr. Challies, speaking of the preliminary planning for the proposed St. Law-

rence Seaway and Power Project, emphasized the guiding principles which the Commission was following in respect to this project.

"The individual citizen must always be treated with justice and equity, and municipal autonomy must be preserved as fully as possible. It is our intention, as well as that of the Ontario Government, that the whole area involved in this project will be restored, with improved municipal services, through close and friendly co-operation between provincial and municipal agencies."

The Commission's Liaison Engineer, H. D. Rothwell, already has had informal meetings with the representatives of the affected municipalities. At these meetings, the municipalities have been able to put forward their views and wishes,



HON. George H. Challies, Ontario Hydro's First Vice-Chairman, highlighted the conference with his discussion of the preliminary planning for the St. Lawrence Project

and to become fully acquainted with the Commission's preliminary plans.

"Historical sites, such as the memorials marking the location of the Battle of Chrysler Farms, will be preserved," the speaker stated. "In this connection, the Commission has retained the services of James Smart, former Director of National Parks and Historic Sites, to make recommendations as to the best means of preserving such valuable links with the

M. W. ROGERS, Manager, Carleton Place P.U.C., discusses office equipment with an Ottawa sales representative, T. D. Coughtry.



GEORGE A. PHILLIPS, Jr., Smiths Falls, was presented with the President's citation for his work in organizing the Eastern Ontario conference by G. R. Davis, Ottawa. This was the first presentation of its kind ever made by the A.M.E.U. for noteworthy effort.





historic past of the communities to be affected by the project."

Replying to the question, "Is St. Lawrence Power Necessary For Ontario's growth?" he told the delegates that Ontario's demands for primary power have increased by over 300 per cent in the last 20 years. Since 1945 primary power demands have increased 77 per cent.

"During 1952 the Commission generated and purchased almost 20 billion kilowatt-hours for its municipal, rural and direct industrial customers. This was about 4½ times the total energy generated and purchased in 1932, and about 11 per cent greater than the total only 10 years ago. It is estimated that the demand for energy in the years immediately following 1956 will require all of the 6,300,000,000 kilowatt-hours from the St. Lawrence."

### Labor Equivalent

The speaker forcibly pointed out the vast power resources lying untapped in the International Rapids section of the St. Lawrence by comparing it with equivalent human labor.

The total 2,200,000 horsepower potential is sufficient to supply each county with approximately 6 billion, 300 million kilowatt-hours per year. If this energy had to be replaced by human effort it would require the work of 28 million men, on the basis that one strong man working for eight hours can produce only ⅓ of one kilowatt-hour—or 15 kilowatt-hours for 300 working days a year.

"If, for this energy production, he received payment at an average rate of say 10 cents per kilowatt-hour, his income for the year would be \$6.75," the speaker stated.

Mr. Challies was introduced by N. J. Douglas, Smiths Falls, with R. R. Stiver, Belleville, conveying the appreciation of the delegates.

T. E. Dietrich, Manager, Services Department, Ontario Hydro, addressed those present during the evening session on "Customer Relations."

He described good customer relations, from the Hydro point of view, as explaining Hydro's operations to the public at every opportunity, and of translating the various phases of Hydro work into language that could be readily understood by everyone.

Considerable emphasis was placed on the importance of courtesy in personal contacts with customers, as well as in telephone conversations and letters.

"Customer relations is not expected to whitewash a scoundrel or his organization, nor is it intended to hoodwink the public. An organization must be deserving of patronage and customer confidence, have a good product at a fair price, and provide good service, before customer relations work can be effective."

### Methods of Communication

Mr. Dietrich explained how information about an organization could best be made available to the public: Keep in close touch with the press; talk to service clubs, women's groups, and school students; open offices and substations, on occasion, to the public and school groups; prepare low-cost displays; advertise on the backs of bills, and insert messages with bills.

In conclusion Mr. Dietrich defined public relations in action as: "Knowing

(Continued on page 28)



LT. COL. ROBERT LAUGHTON, OTTAWA

who recounted his experiences in the Korean Campaign while serving with the Royal Canadian Army Service Corps, 25th Brigade.



W. C. LEWIS

Secretary-Treasurer, Ottawa Hydro-Electric Commission, who introduced Lt. Col. Laughton.



T. E. DIETRICH

Manager, Services Department, Information Division, Ontario Hydro, who discussed "Customer Relations" during recent conference.



PART of the large group of delegates from Eastern and Central Ontario shown during one of the sessions of the two-day gathering.



## A VETERAN RETIRES

(Continued from page 25)

valuable role in the various technical organizations of which he was a member, particularly the electrical and waterworks associations where he gave distinctive leadership.

T. Arthur Rogers, former commissioner of the Perth Commission for 14 years—11 years as Chairman—credited Mr. Smith with “doing a very able job,” and with “having the best interests of the people at heart during his 56 years service.”

Among those who spoke briefly were: M. W. Rogers, Manager, Carleton Place P.U.C.; T. V. Lalley, Warden, County of Lanark; K. W. Saunders, Manager, Perth ROA; J. W. Young, Consumer Service Engineer, Eastern Region, Ontario Hydro; G. R. Davis, General Manager, Ottawa Hydro, as well as John M. Douglas, Dr. E. H. Wilson, J. F. Moore and Dr. W. G. Blair, M.P., all of Perth.

### Early Electrical History

Mr. Smith recalled the town's early electrical history from his unique vantage point of 35 years' service with Perth PUC, and 21 years as Manager with the founding company, the Canadian Electric and Water Power Company.

“In the beginning there was little electricity used except for illumination. To build up load, some municipalities gave away electric irons. Here in Perth, I gave away thousands of light bulbs in exchange only for an old one.”

During this early period, electric meters were unknown, and electricity was sold at the flat rate of \$2.00 per year for a 16 C.P. carbon lamp. Station operators received \$60 a month for seven-day week, 12-hour shift, and \$1.00 per day was the wage for ordinary labor for 10 hours work, he stated.

“Perth had its frequency changeover program back in 1918,” said Mr. Smith “when Ontario Hydro purchased the Canadian Electric and Water Power Company and converted the company's 133-cy system to 60 cycles.”

In conclusion, Mr. Smith expressed the view that he was leaving the utility in good shape—mechanically, electrically and financially.



A YOUNG representative of Perth P.U.C., Norma Greer, is introduced to veteran Sudbury Hydro Manager R. H. Martindale, while G. R. Davis, Ottawa, extreme right, awaits his turn. Other Perth delegates are, l. to r., Miss Jean Miller, R. J. Smith, and Miss Tena Harvey.

## WITH JUSTICE AND EQUITY

(Continued from page 27)

your business, being able to explain it, getting along well with people, participating in trade activities, being a good honest citizen, giving time to civic affairs of the community, being respected by our neighbors, and being a good Canadian.”

The speaker was introduced by W. H. Gibbie, Oshawa, and thanked by Floyd McRae, of Brockville.

Other speakers included L. P. Larsen, Regional Accountant, Eastern Region, Ottawa, who spoke on “Problems Affecting Municipal Accounting;” W. H. Layzell, Addressograph - Multigraph of Canada, Toronto, whose morning address was entitled “Confidence for Today—for Tomorrow,” and Lt. Col. Robert Laughton, Ottawa, who spoke on “My Experiences in the Korean Campaign.”

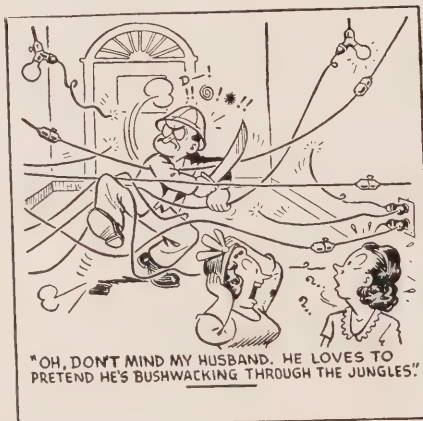
During the conference Mr. Phillips was presented with a handsome testimonial in recognition of his excellent work in the organization and establishment of the Eastern Division Accounting and Office Administration Conferences—the first citation of its kind presented by the A.M.E.U.

### Presentations

In a series of surprise presentations, Ron Mathieson, Secretary-Treasurer, A.M.E.U., was honored by the commit-

tee of the Accounting Conference; Mr. and Mrs. V. G. Bussey, Weston, were presented with a birthday cake in token of their 35th wedding anniversary, and Mrs. W. C. Lewis, of Ottawa, with flowers on the occasion of her birthday.

Head table guests at the luncheon session, under the chairmanship of M. W. Rogers, Carleton Place, included: R. R. Stiver, Belleville; R. H. Martindale, Sudbury; N. J. Douglas, Smiths Falls; L. P. Larsen, and G. R. Davis, both of Ottawa; D. J. McAuley, Municipal Accounting Supervisor; H. T. Macdonald, Internal Auditor, and G. A. Honsberger, Assistant Comptroller, all of Ontario Hydro.—by H. B. Wood.





## Home Forum

by EDITHEMMA DIGHTON

Hydro Home Economist



When it's too hot to cook, and almost too hot to eat it is difficult to get interested in preserving fruits. But, remember—winter is coming! Tests indicate a new way to make jam will tempt everyone to store quite a number of jars in a home freezer or food locker, no matter what the weather.

Today the preserving kettle can be discarded in favor of freezer or locker storage, since the fruit does not need to be heated to make jam. Pectin does the efficient job of gelation if the ingredients are fresh, clean and properly measured. It may take only a few minutes for the jam to form, or it may take 2 or 3 days—therefore, this jam should be frozen to prevent fermentation. If a jam is being kept only a few weeks, refrigerator storage will be adequate.

Commercial pectins, either liquid or powdered, are used in making these uncooked jams. The powdered pectin has the advantage of producing jams with slightly better color and flavor, while the liquid pectin has the advantage of easier preparation.

The preparation of the fruit for making jam is important. The clean fruit (washed or pitted if necessary) may be very finely mashed or put through a blender, food chopper or an electric blender. Then measure and combine fruit puree with sugar and let stand for 20 minutes; stir occasionally.

As soon as hot pectin solution and fruit have been stirred for exactly 2 minutes, pour into jelly glasses or freezer containers. Cover as soon as poured with melted paraffin. Let stand until gelled, then store in the freezer.

To use liquid pectin for this type of jam, omit the powdered pectin and water in recipe and use  $\frac{1}{2}$  bottle of liquid pectin ( $\frac{1}{2}$  cup). No cooking necessary.

\* \* \*

Remember the two different groups of fruit. Group 1 includes strawberries, thimble berries, peaches, apricots and prune plums in which 2 cups pureed fruit, 4 cups sugar are mixed with 1 package of pectin, and 1 cup of water. Group 2 includes raspberries, grapes or tart plums in which 3 cups of puree should be mixed with 6 cups sugar before adding to 1 pkg. pectin crystals boiled in 1 cup water for 1 minute.

## FROZEN PEACH JAM

(Also apricot, prune, plum or strawberry)

2 cups finely-chopped peaches

4 cups sugar

1 pkg. pectin crystals

1 cup water

Select fresh, free-from-blemish peaches. Skin, stone and mince peaches. Combine peaches and sugar. Let stand 20 minutes, stirring occasionally. Add pectin to the cup of water, bring to boiling and boil rapidly 1 minute, stirring occasionally. Remove from electric element. Add peaches and the juice; stir about 2 minutes. Pour into jelly glasses or freezer containers. Cover and let stand at room temperature 24 to 48 hours, or until gelled. Seal with paraffin and store in home freezer or locker. Makes about 6 jam jars.

If, at the time of serving, uncooked jams are stiffer than desired, a small amount of stirring will soften them. If "weeping" or syneresis has occurred after jams have been opened for serving, mix well with a fork to thicken.

\* \* \*

There is no vitamin C in fruit jam, but there is plenty in fresh black currants, so crush with a potato masher, add cold water, a dash of sugar and drop an ice cube in each glass. Raise your glass as you recall its true value. Then, there's raspberry punch, cherry flip, and blueberry fizz, etc.

\* \* \*

If cans are being stored for summer months in the electric refrigerator it may be advisable to rub a little clear salad oil on them to prevent rust, although it is not necessary to keep more than a few days' supply in the refrigerator unless storage room temperature is over 70 degrees.

\* \* \*

Whole milk powder and skim milk powder should be beaten in water and refrigerated overnight to be as palatable as fresh milk.

\* \* \*

To whip whole milk powder and use in bavarian whip, or as a fruit pie topping, be sure to mix with ice cold water. Sprinkle 1 cup milk powder over 1 cup water. Chill 15 minutes then beat until thick. Add 2 tbsps. sugar,  $\frac{1}{4}$  tsp. plain gelatin and  $\frac{1}{4}$  tsp. vanilla, and continue beating until smooth. Chill again.

\* \* \*

Fresh vegetables like humidity! However, to keep crisp and free from brownness, store in a vegetable drawer or plastic bag. Wrap lettuce in wax paper or foil to exclude air, but keep in the lower part of the electric refrigerator.







ONTARIO HYDRO

# News

September, 1953 — Vol. 40, No. 9



**LINES ACROSS THE BORDER**

Story on Page Two



# ONTARIO HYDRO

# News

SEPTEMBER, 1953

Vol. 40, Number 9

Published by

THE HYDRO-ELECTRIC POWER COMMISSION

OF ONTARIO

620 UNIVERSITY AVENUE, TORONTO



## COMMANDING POSITION

IN THIS ISSUE we direct attention to the vast industrial concentration in Sarnia's "Chemical Valley" along the shores of the St. Clair River, and the impressive changes in Toronto Township, a few miles west of Ontario's capital.

What is happening in Lambton County and Toronto Township today is indicative of the great changes taking place all across the province.

In its recently-issued "*Ontario Industrial Review*" for 1952, the Trade and Industry Branch of the Ontario Department of Planning and Development reports that "over 600 industries new to Ontario have been established here since the end of World War II" with 126 new plants, 37 of them of Canadian origin, locating in this province last year. Capital expenditures by manufacturing industries in new plants and equipment reached a peak of \$492 million—55 percent of the total for all Canada.

During 1952, the Review states, Ontario's 13,200 manufacturing industries achieved an "all-time record" with production of goods worth \$8.6 billion. Approximately 36 percent of the 1952 labor force which reached a peak of 1,926,000—the largest in the history of the province—were employed in manufacturing.

This mounting tempo of industrial activity is reflected in the growing consumption of electrical power throughout Ontario for manufacturing and associated purposes. In its publication "*Ontario Hydro 1952*," issued in August, the Commission reports that it served 200 industrial customers directly in 1952, the average of the monthly primary peak loads being 987,624 kilowatts, an increase of 48,360 kilowatts or 5.1 percent over that of 1951. Primary energy consumed by base metal industries (mostly nickel) was up 16.2 percent over 1951 while furnace loads of the steel and metallurgical industries increased some 8.0 percent over the previous year. Total primary energy consumed by Hydro's industrial customers during 1952 exceeded the 1951 figure by 4.8 percent.

However, this is not the whole picture. Many of the industries mentioned in the "*Ontario Industrial Review*" are served by the associated municipal systems.

Thus, to sum it up the Commission report states that the total number of ultimate customers being served directly or indirectly by Ontario Hydro at the end of 1952 was 1,317,249, an addition of nearly 68,000 over the total recorded at the end of 1951.

The foregoing figures present a glowing picture of very satisfactory expansion throughout Ontario and substantiate the statement of the Ontario Department of Planning and Development that "in the assessment of Canada's achievements to date and Canada's potential for the future, the Province of Ontario maintains a commanding position."



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## CONTENTS

Page

Lines Across the Border	-----
Voices from the Sky	-----
Wired Man	-----
Along the Golden Strip	-----
Press Praise	-----
This and That	-----
The Day Has Come	-----
Steady Progress	-----
Along Hydro Lines	-----
Foto-News	-----
Electric Dikes	-----
Hydro Home Forum	-----

## COVER PHOTOS

OUR front cover this month shows Ontario Hydro line construction crews laying power cables in the St. Clair River as part of the challenging task of interconnecting the power systems of Ontario Hydro and the Detroit Edison Company at Detroit and Sarnia. The back cover depicts "dead-ending" operations in progress on the Canadian side of the St. Clair River near Sarnia, with Garnet C. Wellwood of Hydro's Merlin R.O.A. staff, who participated in the operations at both points, talking over one of the Hydro mobile radio units. (For a full description of this project turn to page 2.)

Material published in Ontario Hydro News may be reprinted without permission. Most photographs are obtainable on request. If required, stereos will be provided.





**T** HIS HAND is here to build a brave new world  
Of good clean lines, of light and air and hope.  
It burrows mountains, tames the racing floods,  
Flings steel-stoned fingers at the dazzled sky,  
Passes the clouds, and gentles potent atoms.  
When men reach out to space and touch the stars,  
This hand will point the way to outer worlds.  
Faith reaches greater heights when man can see  
This hand is on our future fraught with destiny.

— by Horace Brown.



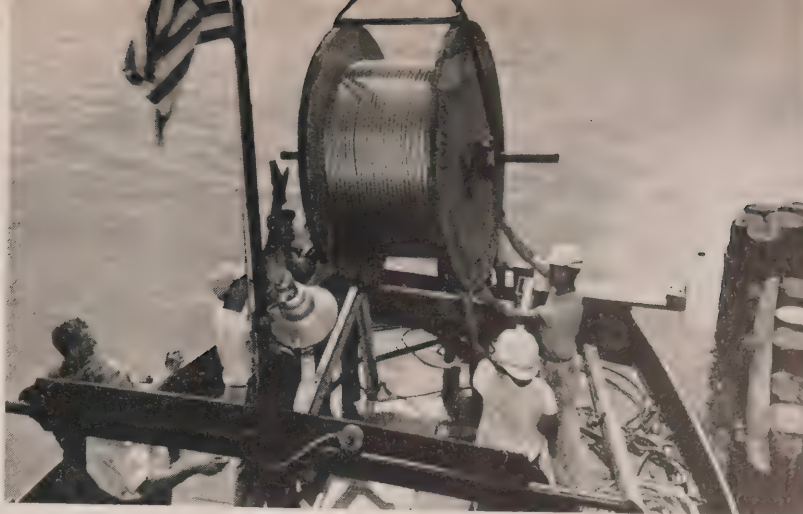
# LINES ACROSS THE BORDER







MOVING toward the Canadian shore across the Detroit River near Windsor. Detroit Edison suspension tower is shown (left foreground) with the Ontario Hydro towers visible in the background, right.



DURING the stringing for the Windsor-Detroit link, Ontario Hydro and Detroit Edison crews lower a cable reel into position on the tug moored on the U.S. side of the river. This cable had, previously, been anchored and passed over the American suspension tower.

## Historic Spanning of Detroit and St. Clair Rivers Links Ontario Hydro and Detroit Edison Power Systems

EXEMPLIFYING international accord in concrete and practical fashion, Ontario Hydro and Detroit Edison Company recently took major steps toward connection of their two great systems.

Prelude to what is believed to be the largest international exchange of power in the world, line construction crews, during September, completed the exacting task of stringing tie-lines across the Detroit and St. Clair Rivers near Windsor and Sarnia.

Destined to provide significant advantages and benefits to both systems, these new power links with the State of Michigan are a heartening extension of the commission's previous ties with the power systems of Quebec and New York State.

Canadian Government approval of the Ontario Hydro and Detroit Edison interconnection was received by the Commission in February this year. While the Michigan power company awaited endorsement of its participation in the power exchange scheme, Hydro erected the necessary steel towers on the Canadian side of the Detroit and St. Clair rivers. Allied with these facilities was

the installation of one of the largest regulating transformers ever produced in Canada at the Commission's J. Clark Keith Generating Station at Windsor. Similar transformer equipment has been provided by Detroit Edison for the Sarnia-Marysville span across the St. Clair River. These facilities are designed to bring the varying voltages of the two systems into uniformity.

### First Link

The first link across the Detroit River near Ontario Hydro's J. Clark Keith station at Windsor and the Delray fuel-electric plant of Detroit Edison was completed on September 1. By September 10, Hydro's line crews had finished the arduous job of spanning the St. Clair River between the Commission's Sarnia Transformer Station and Detroit Edison's Marysville plant.

Connecting of the systems at both points was a challenging job, complicated by the heavy navigation on both rivers, and by the hazard of cables becoming entangled in debris on the river bottoms during the crossings. In view of this, Hydro crews under E. G. Archer, the Commission's Line Construction Engineer, allowed three days for the stringing operations at both points.

At Windsor, with favorable conditions prevailing, the actual stringing of the two 7/16-inch diameter ground cables (for lightning protection), and the three, 1 1/8-inch diameter conductors required

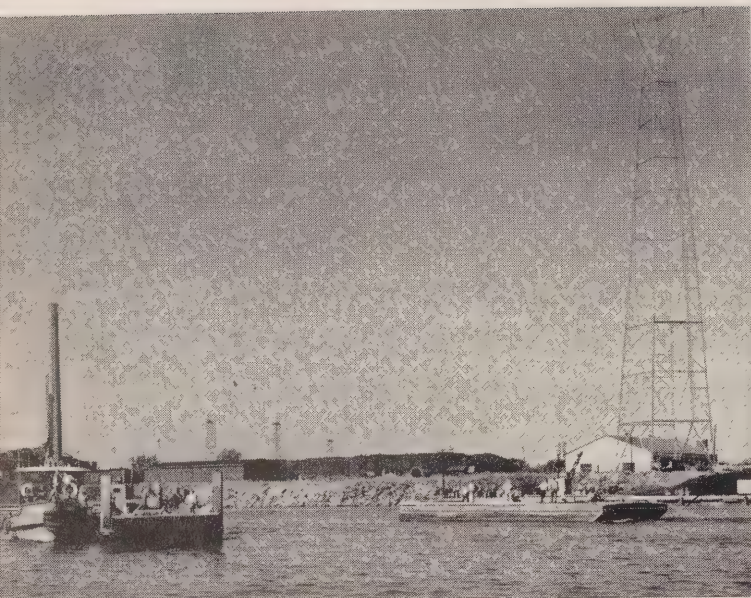
only one day. The same efficient team carried out operations at Sarnia where work was completed within less than a day. The method of stringing the conductors across each river was similar in most respects, with slight variations in procedure being introduced for the Sarnia-Marysville interconnection as a result of experience gained during the earlier Windsor-Detroit project.

At the Windsor crossing, stringing by Ontario Hydro construction crews began on the Detroit side of the river. The reels, with the aluminum and steel conductors, previously connected by Detroit Edison forces to the anchor tower and passed over the 302-foot high suspension tower on the American side, were positioned on a tug. (For the Sarnia crossing a tug and a motor-driven barge were used, the cable being mounted on the deck of the barge. When they neared the shallow water on the Canadian side, the tug cast off and the barge continued to the shore under its own power). About 50 yards from the United States shore each conductor was passed over a scow to keep it free from any possible obstructions in the water near the shore. As the boats moved across the river, the cable was fed off the reel and allowed to sink. Before operations commenced at both points the effect of the currents in the rivers on the cable-carrying craft was studied and rehearsed in order that the cable, when finally at rest on the river bottoms, would be directly under

(Continued on page 4)

Cables across the St. Clair River for the Sarnia-Marysville link, the tug (left foreground) from the barge near the shallow water on the Canadian side. In the background, right, Detroit Edison's Marysville fuel-electric plant and the American suspension and anchor towers for the new international line on the left.





**TUG and landing barge, lashed together, were used for Sarnia-Marysville operations. They are shown leaving U.S. side of river. The cable, having been passed over the scow, below suspension tower, is being laid on the bottom of St. Clair River.**



**BARGE, propelled by tug, reaches midstream during Sarnia-Marysville cable-laying after waiting for freighter to pass. Distance between suspension towers in this link is 2,319 feet. Windsor-Detroit span is 2,387 feet long.**

the line of "pull" when being erected. This particular phase of the stringing at both points was under the direct supervision of Isaac Hicks, Hydro Line Construction Superintendent.

On the Canadian side, the loop of cable was transferred to the shore. Here, the remainder was pulled from the reel, hoisted to the top of the 302-foot high suspension tower on the Canadian side, and passed over the tower to a tractor which, when clearance was received from the U.S. Coast Guard, pulled the cable up from the river bottom to a temporary position about 140 feet above the river. Final tightening to the required sag—about 180 feet above the water—was done the following day.

### Highest Transmission Towers

At the Windsor crossing, the cables spanned a distance of 4,099 feet between the anchor towers on each side of the river. The distance between the two suspension towers (which, in fact, serve as a prop between the two anchor towers) is 2,387 feet. Comparable figures for the Sarnia crossing are 4,110 feet and 2,319 feet. The towers at Windsor are the highest transmission towers Hydro has constructed.

The whole stringing operation, of course, had to be synchronized with shipping movements on the river. This was accomplished through the excellent

international co-operation of the Royal Canadian Mounted Police and the United States Coast Guard. Two RCMP boats, four Coast Guard boats, and a Coast Guard spotter were linked with each other, and with the construction crews, by means of an RCMP-Coast Guard ship-to-shore communications system, supplemented by mobile radio units provided by the Commission. When construction crews were ready to raise the conductors, Line Construction Superintendent George Marley, at the microphone of Hydro's mobile radio system, advised the Coast Guard control, which gave the signal to proceed when navigation permitted.

Each of the five conductors, at both crossing points, was strung and raised well within the time limits, with 10 minutes being allowed for the tug crossing, and 20 minutes for raising each cable.

Although the actual stringing at both

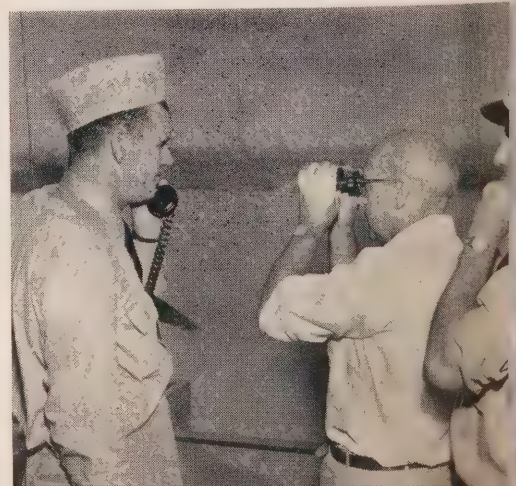
points was carried out by Hydro crew, this was handled in close co-operation with Detroit Edison representatives who prepared the lines on their side of the river.

### Assistance Commended

"The splendid assistance given by the Royal Canadian Mounted Police, the United States Coast Guard, as well as customs and immigration officials, contributed greatly to the successful completion of this important project," Mr. Archer stated.

Outlining the mutual advantages to be derived from this interchange of power, Chairman Robert H. Saunders said that each tie-line could transmit between 125,000 and 150,000 kilowatts, or a total of almost 300,000 kilowatts—about three quarters of the 60-cycle capacity of the Richard L. Hearn Generating Station.

**DIRECTING** navigation and timing of cable-laying and raising operations, this control team, l. to r., Lt.-Cmdr. C. W. Scharff, U.S. Coast Guard; L. J. Jacobi, Detroit Edison, and Lt. E. D. Fulcher, keep in touch with construction crews, and with the Royal Canadian Mounted Police and Coast Guard boats patrolling the river by means of radio.







DURING the final stages, with the cable threaded through the Hydro suspension tower, the tractor pulls the heavy conductor toward a temporary anchor. Later it will be raised to its final position on the anchor tower in the background.

reaches Canadian shore where the balance of the cable is taken ashore for threading through Ontario Hydro suspension tower. Temporary poles kept cables clear of Highway No. 40.

Toronto (the largest fuel-electric station in Canada).

Of particular significance in this latest system interconnection is the fact that, with the power reserves of each system available to the other, neither utility is dependent upon one type of power generation, since Detroit Edison is essentially a fuel-electric system, while Ontario Hydro is predominantly hydro-electric.

"This is of great importance to Ontario Hydro at the present time when low water reserves have reduced the output of the generating stations on the Cawara River."

#### Operating Economies

On the other hand, in periods of high run-off, when the Commission is capable of generating more power than required, Ontario Hydro will be able to supply power to Detroit Edison, thereby providing substantial operating economies.

In effect," Mr. Saunders added, "the new hook-up means that we now have at our disposal an additional power source to back up the output of our own stations. It is an important dividend from our frequency standardization program, since the Detroit Edison system is entirely 60-cycle. The exchange of power would not have been possible without 60-cycle standardization of the Ontario system which is now being carried out."





# VOICES FROM

Hydro's new ultra-high frequency radio system, operating between Toronto and Niagara Regional Office, designed to play vital communications role

By H. B. WOOD

**A**TTRACTING as many curious glances as "chin whiskers" on a chap celebrating the centennial anniversary of his home-town, are two corner-reflector antennae atop the Commission's Head Office in Toronto.

This "science foliage," 275 feet above University Avenue, faces south over Lake Ontario in a direct line with a companion antennae at Ontario Hydro's Regional Office at Niagara Falls, Ontario—40 miles distant as the crow flies!

Between these two points, conversations will soon be exchanged at the speed of light, or 186,000 miles per second. The ultra-high frequency radio waves carrying the messages are commonly termed microwaves—the new development many engineers claim will ultimately replace all wire lines on long distance services.

Such a system, but employing a series of microwave relay towers, flashed the voice and image of the original CBC-TV Coronation film from Montreal to Toronto's CBLT studios, a scant 11 hours after the ceremony in Westminster Abbey on June 2 this year.

Microwaves can be focussed from point to point like a searchlight and as well, possess many of the characteristics of light: they travel in relatively straight lines; are refracted by the atmosphere; diffracted by physical objects in or near the transmission path, and reflected by solid objects or surfaces.

NIAGARA Region terminal of the new ultra-high frequency system.

This last characteristic became apparent when a direct signal from Toronto to Hydro's existing Sir Adam Beck-Niagara Generating Station, near Niagara Falls, was found to be intercepted by the massive bulk of the Royal York Hotel in Toronto. For this reason the Sir Adam Beck G.S. site was not used and the Niagara antenna was erected for transmission between the Niagara Regional Office and Toronto to avoid this difficulty.

But biggest headache of all for Hydro engineers was Lake Ontario itself. In the past, both Canadian and American authorities have avoided lengthy over water transmission. It offered too many problems—many of them not fully understood.

Now with the use of ultra-high frequency transmission with high power output, tests to date have indicated better than 99 percent service.

Heading up the development and installation of Hydro's microwave system is C. W. Boadway, Communications Engineer, with H. M. Reid, Radio Engineer and T. W. Purdy, Assistant Radio Engineer.

After this equipment is placed in normal operating service, the voice channels provided will be connected into the telephone switchboards at both Hydro Office and the Commission's Niagara Regional Office to handle regular inter-office telephone calls.

The subsequent routine maintenance attention will be provided by the Hydro Office and Niagara Regional maintenance personnel, under the technical guidance of J. C. Cline, Communications Maintenance Engineer, with his assistants, G. Macumber, Radio Engineer, and J.



# THE SKY

Somerville and R. C. Lister, Telephone Maintenance Supervisors.

## Direct Link With Niagara

Operating at 460,000 kilocycles, Hydro's u.h.f. radio system will provide a direct link between Head Office in Toronto and the Niagara Falls Regional Office. It is designed to provide voice communications, telemetering, load control and remote metering functions between the generating area at Niagara Falls and the Power Supervisor's Office located on the eighth floor of the Head Office building in Toronto.

The direct radio channel will supplement the normal telephone communications via Burlington Transformer Station near Hamilton and Allanburg Transformer Station near Thorold. The present radio system has a capacity of 24 voice channels, but only six will be installed at the present time. Telemetering will record the output in kilowatts, as well as forebay levels, of stations in the Niagara area.

From the power supervisor's office in Toronto, load control signals reflecting particular power requirements, will automatically alter the output of the existing Sir Adam Beck station, and when in operation, the new plant.

Remote metering will also record in the power supervisor's office an exact duplication of meter readings at the Niagara plants.

## Important Characteristic

As may be concluded from the variety of jobs handled simultaneously by this system, the important characteristic of a microwave radio is its ability to carry a great deal of information on a single RF carrier. Through so-called multiplexing techniques, signals representing many voice conversations and other types of intelligence, can be combined on the microwave carrier for transmission as a single signal. These can be separated without the distortion at the receiving point.

Separate antennae for transmitting and receiving are not necessary, provided that the difference of approximately one per-



MESSAGES will be transmitted between Ontario Hydro's Head Office in Toronto (above) and Niagara Regional Office (opposite page) at speed of light—186,000 miles per second!

cent is maintained between the incoming and the outgoing signal frequencies. A special device called a "Duplexer," allows both receiver and transmitter to be connected to one antenna without either affecting the other. However, two antennae are being used initially at each terminal point to simplify terminal equipment.

The tremendous information-carrying capacity makes microwave installation, operation, and maintenance cost per channel-mile, quite low. Furthermore, since microwaves travel in relatively straight lines, they are particularly suited to private communications.

## Many Benefits

A microwave station is practically invulnerable to the ravages of wind and ice which are the worst enemies of wire lines. Static is non-existent, since the high frequency does not pick up static interference, either natural or man-made. Other benefits include:

1. No right-of-way to purchase for erection of wire circuits or installation of buried cable.
2. No maintenance of circuits along the route.
3. No inductive co-ordination problems

(Continued on page 8)



because of the separation from high voltage power circuits.

4. No revisions or alterations required due to changes in the physical routing or construction of pole lines or cable ducts.

5. Should the service be discontinued or terminal location changed, it would be very simple to move the terminal equipment at small expense.

6. Loss of service due to equipment failure is concentrated at specific terminal locations and can be easily detected and repaired.

7. No patrol of lines required. Outage time will be reduced.



**C. W. BOARDWAY**

**Ontario Hydro's Communications Engineer, who has headed the development and installation of the ultra-high frequency system.**

8. Repairs to equipment can be handled by a relatively small staff of technicians.

#### Numerous Problems

However, like the old recipe for "jugged hare," which begins, "first catch your hare," so in the beginning, a variety of problems had to be surmounted before the system was put into operation.

Signal fading over Lake Ontario was the main difficulty encountered. It was discovered that the actual signals changed their angle of arrival, and thus did not reach the antenna. There are many reasons for this, but basically the radio wave is refracted or bent off-course by the unequal density of the air which lies in layers over flat stretches of water, or land masses such as the salt flats of Utah. A common example is the phenomenon of "heat waves," where the heated air

bends the light rays, giving a wavy appearance.

#### Stronger Signals

Hydro engineers minimized the fading by transmitting a stronger signal than customarily used for such service to reduce the duration of fade-outs.

Initial tests began in the summer of 1949 between Toronto Head Office and DeCew Falls G.S., using a lower frequency. This path length of 40 miles, line-of-sight, consisted of 32 miles over water and 8 miles over land. Results of this test indicated that severe fading at the frequency used would make the circuits unreliable—unless elaborate precautions were taken.

Following conclusion of these tests, considerable study, in close liaison with the Department of Transport, resulted in a different frequency assignment of some 460,000 kilocycles. This frequency assignment was made early in 1952. Equipment was delivered to Hydro and in operation by October of last year. It has been in continuous test operation since that time, with minor outages for adjustment and test.

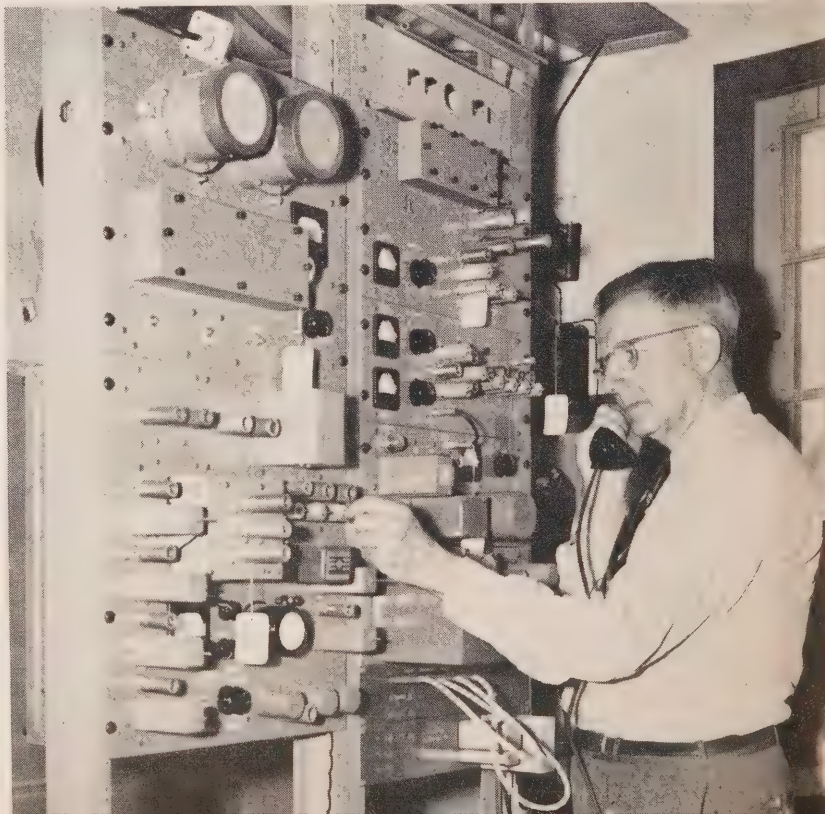
#### Comprehensive Tests

Very extensive and comprehensive tests have been conducted on the equipment to be assured of the quality of performance it is capable of providing. The transmitter has a power output of 50 watt which is amplified by a high gain directional transmitting and receiving antenna.

*(Continued on page 27)*



**ABOVE**—Examining antennae on roof of the Commission's Head Office Building in Toronto are Radio Engineer H. M. Reid and Assistant Radio Engineer T. W. Purdy who were primarily responsible for launching this additional system of communication. **RIGHT**—Niagara Region Communications Foreman G. J. S. Dudley tests ultra-high frequency equipment which has numerous uses including transmitting water level and power output figures of Niagara generating plants.







CLOSE-UP of radio relay equipment room in the Ottawa building of Bell Telephone Co. where a technician is testing microwave-receiver unit which amplifies microwave beams passing along Toronto-Montreal route.

MICROWAVE radio relay tower on top of Bell building on Adelaide St. in Toronto. Twin antennae point to Uxbridge, first tower on route to Montreal. Single antenna receives TV-carrying signals from Buffalo.

(Photos by Bell Telephone Company)

## BELL'S "VOICE HIGHWAY"

COMPETING in historical significance with Ontario Hydro's new ultra-high frequency radio system, is the first Canadian inter-city microwave radio relay network recently inaugurated by The Bell Telephone Company of Canada.

In the past few months, Toronto residents, and in fact, many Ontario citizens, have been commenting on the steel towers, topped with antennae, which have sprung up across the central and western portions of the province.

One of the main towers is located on the Bell's Adelaide St. West building in Toronto, while other pick-up and termination points are Montreal, Que., and Ottawa. Those strange-looking structures which excite the interest of so many Ontario motorists are the 12 intermediate relay stations between the cities mentioned above.

This new radio relay system permits the Canadian Broadcasting Corporation to transmit the same live TV program simultaneously from its stations in To-

ronto, Ottawa and Montreal. It also provides, for the present, 60 new telephone circuits between Toronto and Montreal, 12 between Ottawa and Toronto, and 12 between Montreal and Ottawa.

For several months, through its Buffalo-Toronto radio relay link, Bell has been providing service to the CBC, allowing TV audiences in the Toronto area, and latterly the Montreal area, to view several "live" U.S. programs.

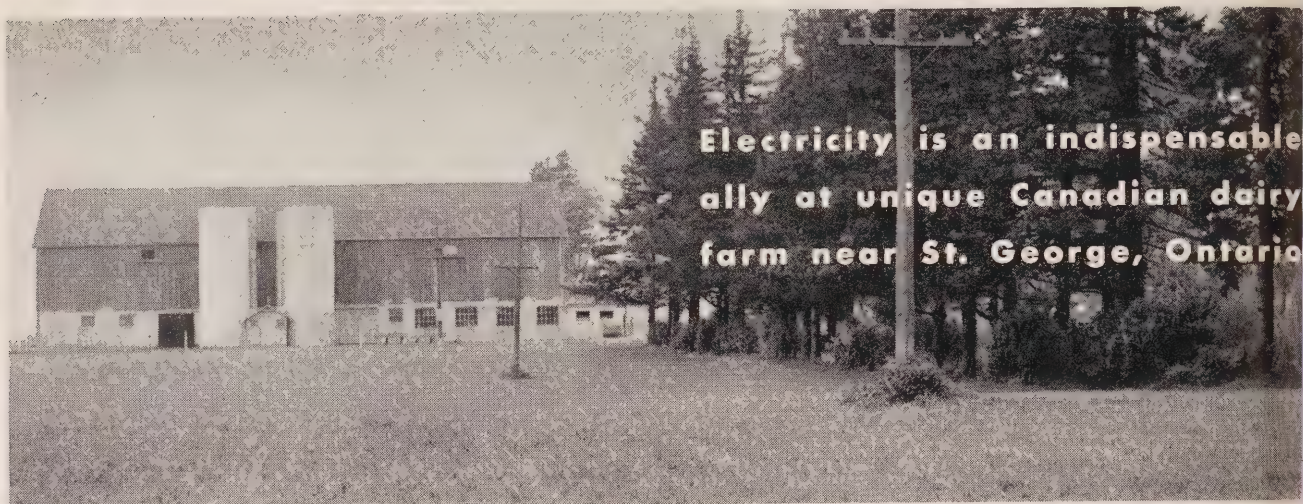
Transmission over the system is by microwave in the 4000-megacycle frequency band which has a wave-length of some three inches. Lens-type antennae concentrate the waves into narrow beams with such efficiency that less than a single watt of power is required to span the distance between the various relay points.

Video cables carry the television signals from the terminals to CBC transmitters in Toronto, Ottawa, and Montreal, which "beam out" the programs to the home receivers in each area.





# Wired man



THE most contented cows in Canada are possibly those at Clarborne Farm, on Highway 99, near St. George, Ontario.

These Holstein cattle have nothing more to do in life than give milk, which they do in rich and copious quantities. The rest of the time, they, literally speaking, do as they please.

Certainly the most contented hired men in the country work for 34-year old Clarence L. Rosebrugh, third generation operator of the 312-acre farm, which was first cleared in 1871. They know that working beside them constantly is the "wired man," the ally that keeps this electrified farm on the black side of the ledger.

Clarborne Farm has been redesigned to meet the changing needs of the farmer, beset by the shortage and high price of competent farm labor. Many up-to-date barns still feature stalls and stanchions. Water bowls are used, and barn cleaning, even with a modern electrical barn cleaner, is a daily chore. The feed must be brought to the cattle. Even with the help of electricity, the modern barn's use is limited by the daily chores its upkeep demands.

At Clarborne Farm, these chores have

been eliminated to a very great extent. Two men can look after 75 cows with the same amount of labor it once took for only ten animals.

## Loafing Barn

Last December, Clarence Rosebrugh, who took over the farm in September last year when his father died, carried out a plan he had seen on a visit to the United States, and about which he was enthusiastic. He had his barn remodelled, turning it into a "loafing barn," and added a spotless "milking parlor," now almost completely automatic.

The principle of the loafing barn is comparatively new, but those who have tried it declare they will not go back to the old methods. In the loafing barn, the ceiling is raised to a maximum of 12 feet. There are no stalls in this type of barn, with the cattle being fed at a central trough.

Winter and summer alike, the barn door is left open, the cows being free to "come and go" as they please, except for an occasional cleaning. Clarborne Farm also boasts an outside paved area, 7,500 feet square, for the herd's additional comfort.

Approximately once or twice a year

(depending on the size of the herd) the barn is cleaned—a striking contrast to the daily chore of stall-cleaning in the conventional type of cow stable. At Clarborne Farm, a layer of fresh straw is spread over the waste on the floor each day, being compacted by the trampling of the cattle. This keeps the cattle clean as well as warm during low temperatures.

The height of the ceiling permits the process of successive new layers of straw to continue for several months until the depth of the floor covering reaches such proportions as to render cleaning a visable.

## Simple Operation

This is a comparatively simple operation, accomplished with the aid of a tractor, equipped with a "front-end loader. The loafing barn "carpet" is carted off to the fields to be used as fertilizer, and another layer of clean straw forms the basis for a new "carpet."

The loafing barn, it is felt, helps the cattle to adjust themselves, and provides ample release for a cow's predominant trait of curiosity. A psychologist might say that the Clarborne Farm cattle are "uninhibited."

"The cows were out of the barn even



ay last winter," Mr. Roseburgh states. It was a mild season, and they took advantage of their freedom. But they always seem to know how and when to come back into the penned yard. You might say they practically looked after themselves, except for our providing feed and water at the outdoor trough, and rying the straw for the floor."

Mr. Roseburgh claims that, under this system, the cows give more and better milk.

### Milking Parlor

As part of the loafing barn, the spotlessly clean milking parlor is still separate in its operation. Here, the milk flows straight from the cow to the milk-can, without once being handled by human hands. It is in this ultra-modern setting that electricity plays its most important role.

When milking-time approaches, the cattle head for the barn. An electrified wire has been strung across the section they enter. At milking-time, they start, one by one, up a ramp. Mr. Roseburgh says that after two or three days, most cows go up the ramp of their own accord, for the cow is a creature of habit.

The cattle enter the milking parlor through a door at the head of the ramp. In the milking parlor, with its four stalls, two attendants handle four cows at a time. Each stall is equipped with two gates. As the cow enters the parlor, the attendant opens the near gate and the cow enters its milking stall. After the cow has been milked, the attendant pulls a rope at the opposite end of the stall. The cow then walks down a short corridor to a door leading back into the loafing barn—on the other side of the electrified wire. At no time is it necessary to touch the cow. If she is a little balky,

*(Continued on page 12)*



FARMER Roseburgh's cattle know when it's milking-time! They enter loafing parlor through open door and are confined to section leading to milking parlor by electrified wire.



RAMP leads cattle to the milking parlor through door (upper left) which is opened by an attendant in the parlor. Second cow is standing quietly, awaiting her turn at the "milker."



PARLOR accommodates four cattle at one time. When bottles are filled, milk is weighed, the milk is pumped through stainless steel pipe (second from top) by an electric centrifugal pump.

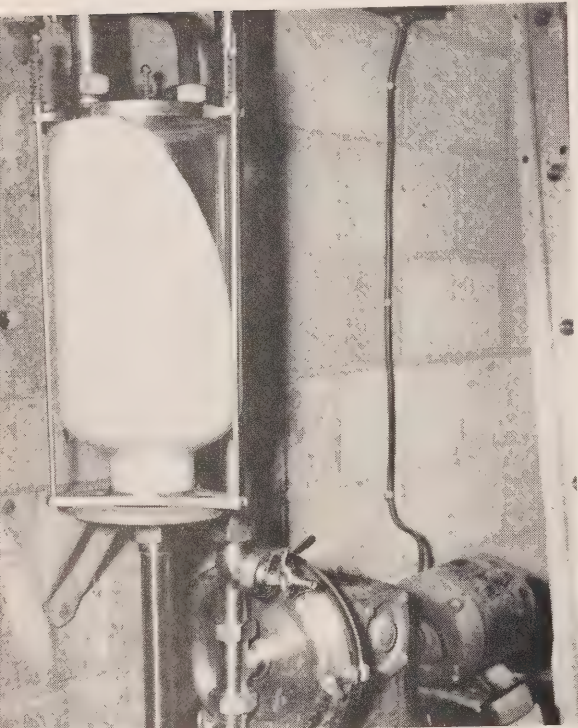


## WIRED MAN

(Continued from page 11)



▲ AFTER giving their "all" for the honor of Clarborne, the cattle relax in the spacious loafing barn.



◀ MEANWHILE milk passes along stainless steel pipe through bottle connected to the centrifugal pump.



◀ TRICKLING over aerator pipes, milk temperature drops from 97 to 38 degrees in a few seconds.

generally a word is all that is necessary to send her back to the barn.

The two attendants, and the barn helper, go about their work efficiently. They are recent arrivals from Holland. Herbert Devos has been three years with Clarborne Farm, while two brothers, Rink and Chris Duiker, are comparative newcomers to Canada. Each man has a self-contained apartment for himself and his family, and they are cheerful and helpful.

With the cow in the stall, the hired man cleans the teats with warm water from the Hydro heater, then attaches the electric milking-machine to the udders. Four cows are milked at one time, the milk flowing into clear glass containers. Each yield is weighed, and, in a recent demonstration, one cow gave 24½ pound of milk, which is often surpassed. The cattle can be trained to give down their milk in a definite time.

### Milk Cooled

The milking of the four cows complete, an electric centrifugal pump draws the milk along a stainless steel pipe to another glass container. It then passes quickly over the aerator—a series of stainless steel coils cooled by a thermostatically controlled brine tank—and falls through spouts into three 80-pound milk cans. As soon as the cans are full, they are capped and rolled into a cool storage room. When the milk truck arrives the morning, a small door of the storage room is opened and the cans are lifted on to a platform. The daily 14 cans of milk are on their way to the dairy, completely sanitary and cooled to the proper temperature.

"It's as simple as any operation can be," says Mr. Rosebrugh with justified pride. "I figure with this system two men can handle 75 cows, with the same amount of effort required to handle 35 cows using the old method. I know the labor hasn't increased, and yet I've 'upped' my herd by 40 head."

Clarborne Farm has 95 head of Holstein, now. When Ontario Hydro News visited this modern dairy farm recently, 35 were milking, but the proprietor planned to have 75 coming into his parlor day before long.

"One of the things of which I'm proud is that our milk arrives at the dairy at a temperature of 38 degrees, the same temperature at which it leaves our aerator. When you consider that milk leaves the cow at about 97 degrees, that's pretty quick cooling over a short distance. The dairy told us that 48 degrees was



lowest temperature of milk received from their other suppliers."

**Electrified Farm**

Clarborne Farm is truly electrical. In addition to the three barns and a workshop equipped with considerable electrically-operated equipment, Hydro serves two homes and three apartments. Water is provided for the whole farm from a deep-well pressure system. There are two, 3-piece bathrooms, and three, 3-piece bathrooms. The home is equipped for television, and has two radios, a record player, stove, refrigerator and vacuum cleaner. In all, some 26 persons make use of electricity.

"But the Hydro bill for the past three months," says Mr. Rosebrugh, "was only \$40. Believe me, it's the cheapest thing I've ever used. And I'm certainly tickled to death with Hydro service. Why, when I put in for its installation, I didn't know I had to increase the amperage. I soon found out when I connected it up and everything worked. But your Hydro men came up and showed me where I was wrong, and how to put it right. That's what I call service."

"I'll tell you what really sold me on Hydro, though. It was two years ago—New Year's Eve. There was an awful storm. When we came back, we found a tree had blown across our lines, and we had no electricity. I got through a telephone call, and it wasn't long before a Hydro truck drove up through all that snow and sleet. They got out a spotlight and went after that damage. It was really difficult for them, but you wouldn't have thought so the way they laughed and joked. By one o'clock in the morning of New Year's Day, they had the Hydro lines up, and were warming themselves in the house over some of the wife's coffee. Well, sir, you can't tell me about Hydro service! I know *all* about it. I tell you I have a soft spot in my heart for your men. You don't really appreciate Hydro until you run into a situation like that."

**Pioneer Family**

Mr. Rosebrugh comes from a pioneer family of practical farmers. His grandfather came all the way to Brantford by boat from England in 1851. After working for others for a while, he bought the estate of the Hon. David Christie in 1871, and the family has lived at Clarborne Farm ever since. Mr. Rosebrugh's grandfather, Judson Rosebrugh, came to the farm in 1901, and married Fanny Osborne. The present owner's father, Osborne Rosebrugh, carried on the family tradition until his death in

September, 1952. Clarence and Josephine Rosebrugh have two daughters, Joyce, 11, and Donna, 7.

While his main interest is dairy farming, Clarence Rosebrugh for the past 14 years has grown sweet corn for Loblaw stores in Toronto. For a five-week period each year, he ships out 200 to 400, six-dozen bags a day. At one time, he showed Percherons, and held championships from 1938 to 1941, beating out the late "Mitch" Hepburn, former Premier of Ontario, in the last year. He has been also a champion ploughman, holding the championship of Brant County in 1940 and competing in a number of international matches. At present, he is on the Board of Directors of the Brant County Plowmen's Association and is also a member of the local municipal council.

"The future of farming is in electricity," says Mr. Rosebrugh, speaking from his experience. "We just couldn't do without it. It's our 'wired man'."

*\*(Editor's Note: The Area Manager for Ontario Hydro in Mr. Rosebrugh's territory is C. A. Silliphant, Manager of Brantford R.O.A.)*

STILL untouched by human hands, milk is lifted by Mr. Rosebrugh from cooling house to loading platform through connecting door.

HAPPY family group, the Rosebrughs obligingly pose at the door of their home. They have two daughters, Joyce 11, and Donna 7.



DAY'S milk yield, stored in 80-lb. cans, is placed in cooling house to await shipment. Family food locker is also located here.







INDICATING Toronto Township's rapid growth since 1945 are these comparative views of the Queen Elizabeth Highway-Dixie Road area. Photo on the left was taken in 1951 when this section was mainly farmland, in striking contrast with the 1953 photo above showing the new Dixie Interchange and the extensive housing developments which have "sprung up" since 1951.

## ALONG THE GOLDEN STRIP

**Soaring Hydro power demands reflect  
Toronto Township's era of prosperity**

by H. B. WOOD

**W**ITHIN earshot of the heavy motor traffic streaming along Dundas Highway, a few miles from Toronto's western outskirts, sleeps a rambling frame house, its clapboards grey with 131 years of weathering.

One of the oldest houses in Toronto Township, and still in good condition, it was the home of Jane and Joseph Silverthorn, early pioneers of the district. Here, Joseph Silverthorn planted the first cherry orchard in the district with slips brought from his father's farm at Niagara. Appropriately enough, the house became known as the Cherry Hill Place.

When this pioneer couple settled in Toronto Township in 1807, they were one of seven families. Their experiences were typical, as was their family of 12 and longevity of over 90 years.

In 1812, Joseph Silverthorn enlisted in the militia. In his

absence, Mrs. Silverthorn had to face many dangers and overcome many obstacles. At night, wolves prowled near the house in search of food, and Mrs. Silverthorn was often compelled to sit up at night with an old flintlock to protect her children. Bears were a hazard and often carried off small livestock.

In 1803, negotiations between the Mississauga tribe and the government had been completed for the purchase of 75,000 acres of land along the lakeshore at a price of £1,000. Three years later, a survey of this southerly portion of the present township was commenced and completed in 1807. In making this survey, one mile each side of the Credit River from the Lake to the Base Line (2 miles north and parallel with the present Dundas Highway) was reserved for the exclusive use of the Indians who still occupied much of the land. This became



TREASURED LINK with the past is the "Cherry Hill Place," one of the first houses built in Township.



ONE of the major industries in Toronto Township, the Cooksville Company, largest of its kind in Canada, manufactures tile and brick.



known as the Credit Reserve until the Indians later sold all their lands and privileges and moved to the Saugeen River Reserve.

The northerly portion of the Township was surveyed in 1819-1820 and was called the New Survey, a name it still bears.

#### Organized in 1821

In the year 1821, the regular organization of the different townships now composing the County of Peel took place. The Township of Toronto having a total of approximately 64,125 acres, including the Old Survey, containing approximately 29,569 acres, and the New Survey, 34,556 acres. At this time there were less than 300 acres of cleared land in the municipality and a population of only 800.

By 1842, the County of Peel and those of York and Ontario were governed by the Home District Council. This council was composed of 50 representatives appointed by the municipalities. Peel had 8 members.

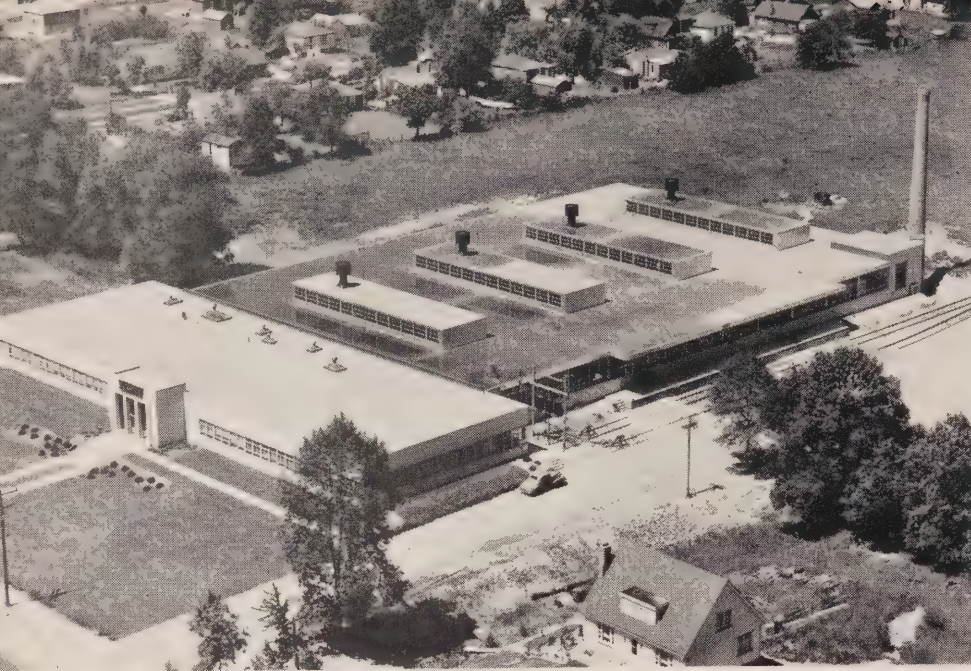
At a special meeting of the Home District Council held on October 1849, a by-law was passed dividing the Township of Toronto into wards and granting authority for municipal elections.

Following 1820, many small villages sprang up around the nucleus of a tavern, church or lodge, and developed into trade and industrial centres. Cooksville, where the municipal offices of the township are now located, established itself as a major community because it was a cross-roads village and a stage-coach stop on the Dundas Highway—the main road of the day.

A significant factor in the growth of Toronto Township was the Credit River. Streetsville, Meadowvale, Springfield, Erindale, and Churchville all grew up around saw and grist mills established on the river.

*Continued on page 16*





SOME 350 people are employed on production alone at the modern plant of Canadian Admiral Corporation, (left), another ne Toronto Township industrial enterprise. Gi on assembly line (above), use pneumatic to for installation of radio and television par

## ALONG THE GOLDEN STRIP *(Continued from page 15)*

Since most of these small communities were dependent to a great extent on road traffic, the coming of the railways isolated the smaller villages and brought strong competition from the cities and industries. With the advent of the railways, both steam and electric, many township people moved to the city, causing a general decline from which many of the smaller communities never recovered.

The automobile and the improvement of paved roads supplied the death stroke for many other small communities. However, with the greatly improved communications systems came another type of boom. At the turn of the century, summer cottages and resorts started to spring up along the lakeshore. Many of these summer residents settled permanently in this area after the Lakeshore Highway was paved.

### "Back to the Land"

This "back to the land movement" picked up more converts during the '30's—consolidated itself during the war years—and by 1945 became a full scale exodus of industry and home owners to the green belt encircling Toronto. Bulldozers and steam

shovels followed by brick-layers, plumbers, and all the rest began laying the foundations for this enlightened program combining the financial advantages of the city with the health atmosphere of the country.

One has only to travel along the busy Queen Elizabeth Highway, west of Toronto, today, to see evidence of the great transition that has taken place. Here, farmhouses and barns and peaceful fields have given way to thriving housing developments and modern industrial plants.

An indication of the township's growth can be obtained by contrasting the number and value of building permits issued in Toronto Township since 1945 in terms of constant dollar value. Residential permits last year totalled 1,356 for a value of \$15,725,257, or 19 times greater than in 1945. Commercial building increased 12 times over the same period and last year totalled \$490,759. In 1952 industrial construction hit a new peak, representing an increase of 40 units over 1945. Last year industrial permits had an estimated total value of \$2,720,000.







REFLECTING township's rapid growth of past few years is the modern headquarters of Toronto Township Hydro-Electric Commission (above), which is administered by the group on the right including Engineer D. L. Holmes, Manager-Secretary R. H. Starr, Chairman G. D. Pattinson, Commissioner W. E. Wright and Jack Gomer, Accountant. Reeve Anthony Adamson was absent when photo was taken.



As might be expected, population since 1945 has "zoomed" from 12,039 to 22,882 in 1952.

In 1945, the average price of land ranged from \$100.00 to 150.00 per acre. By 1952, land values had climbed to between 300.00 and \$3,500 per acre, depending upon the location.

### Role of Hydro Power

Playing a particular and fundamental role in the growth of this township has been an abundance of cheap Hydro power. The first agreement between Ontario Hydro and Toronto Township Hydro-Electric Commission was made in 1913. The average load in 1914, the first full year, was 62.3 kilowatts. Today, the township Hydro system, now serving the municipalities of Cooksville, Dixie, Somerville, Lorne Park, Clarkson, and Erindale, through nine substations, has an average load of 10,724 kilowatts.

A recent expression of Hydro growth in the township was the opening in May, 1951, of a new Hydro office by Hydro Chairman Robert H. Saunders. The new building is generally regarded as one of the finest municipal buildings of its kind in Ontario and is a valuable asset to the community which serves.

The spacious main office embodies the latest features for convenience and comfort of the staff. Modern lighting applications are shown in the clerestory windows located near the ceiling to provide ample natural light, free from glare.

On March 10, 1952, a new electrical era was ushered in when fleets of red trucks and squads of white-coated technicians began the task of converting the township's frequency-sensitive appliances to 60-cycles. In the short space of three months, some 48,498 separate items were altered by the Canadian Comstock company alone, who worked in co-operation with the Toronto Township Hydro field crews. Among the many labor saving appliances changed by the Comstock Company were: 5,743 domestic washing machines and 4,176 domestic refrigerators, as well as 3,600 record players and 1,990 oil burners.

### Boom Since World War II

Toronto Township's greatest electrical growth came with the cessation of World War II in 1945. Reviewing the growth since then, until December 1952, increases of 126.6 percent are recorded in the number of domestic customers; 132.3 percent for commercial, and 247.17 percent increase in power customers.

(Continued on page 26)

AT increases in domestic consumption throughout the year are indicative of growth.

LAKEVIEW Central Public School, newest of 12 public schools, was opened in 1950. Two more public schools will be completed this fall.





## ONTARIO HYDRO. NEI



# #his and #hat

## Advice on Artificial Respiration

Wills MacLachlan, Engineer, Electrical Employers' Association, has been a featured speaker at recent O.M.E.A. District meetings, dealing with the importance of observing safety rules, and the teaching of artificial respiration to utility employees as a means of saving the lives of many victims of drowning and electrical accidents.

In a recent release from the Health League of Canada we were interested to note that Ontario Hydro's Medical Director, Dr. R. W. I. Urquhart, is Chairman of the professional committee on artificial respiration of the Health League. This committee advises that either the Holger-Nielsen or the Schafer prone pressure methods are quite satisfactory. The important thing is: Start either method as soon as the victim is removed from the water. Dr. Urquhart is quoted in the release as saying that the appalling number of drownings reported in the press from all parts of Canada are the reason for reviving this Committee which did its original work under the late Sir Frederick Banting.

At the initial meeting of the new committee the following commendations were endorsed:

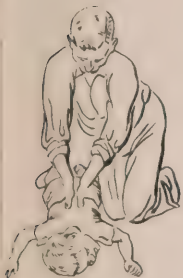
1) That this committee goes on record as believing that both the Schafer and Holger-Nielsen methods of artificial respiration are good and sound for use in cases of apparent drowning; and that the attention of the public should be directed to the necessity of using the method which the individual knows better and in which he has been trained.

2) That this committee endorses the findings of the previous committee of the Health League of Canada on artificial respiration to the effect that resuscitation must be started immediately and should be carried on for a matter of hours or until the appearance of *irrefutable* signs of death. It is vitally important to see that the

mouth is clear and the tongue is pulled forward. It must be remembered that the ordinary signs of life are not to be relied upon in these cases.



Holger-Nielsen position



Schafer position

## More About Standards

In the last issue of *Ontario Hydro News* we published an article on standards, and the importance of standardization, by Alan F. Telfer, Executive Assistant to the Advisory Committee of the Canadian Standards Association. It is amazing how many items have been standardized in the past few years and how many are still being changed to conform to a generally accepted uniform pattern. Not long ago we learned there is a move afoot in Ontario, as part of a continent-wide civil defense measure, to standardize fire-hose connections. Just recently fire hose at Ontario Hydro's generating stations at Niagara Falls were changed to the uniform five-threads-to-the-inch style. The hose at the Commission's Ontario Power plant was the first in the Niagara Falls area changed over to the uniform standard for exterior fire-fighting equipment. This program is to be carried out across Southern Ontario and eventually throughout Northern Ontario under the supervision of the Ontario Fire Marshal's Department. Indicative of the need for such a program is the Department's announcement that they have discovered that at least 76 types of hose threads are in use throughout Ontario.

## Unique Design

In our May issue this year we gave readers a brief preview of the Commission's new five-storey Engineering Building at the corner of Murray and Ordé Streets in Toronto. Unfortunately lack of space forbade telling the whole interesting story about this fine new structure, the design of which is new to Toronto. It is the first multi-storey building in Canada designed for welded construction. By welding the frame of this building it was possible to use shallower and lighter beams than would have been the case had the building been rivetted.

The use of lighter, welded steel instead of conventional, reinforced-concrete, flat-slab construction, permitted the Commission to add two more storeys to the building, with only a slight change in the foundation plans, even though the building was originally planned as a three-storey structure. Other factors favoring the welded design were the savings in steel and the elimination of the noise of rivetting, which, for many years, has always accompanied erection of large, steel-frame buildings.

Designed to connect with the Commission's existing Service Building, it was necessary to plan the new Engineering wing so that it would adjoin the other building, and at the same time provide for settlement. A two-inch gap between the two buildings has been filled with cork, oiled on one side, providing a slip joint which permits the necessary slight movement or settling of the new building. It is anticipated that the settlement will be slight as it rests on a concrete raft foundation which carries the major part of the weight of the new building.



# THE DAY HAS CO



*Hydro power has key role in the dramatic  
development of Ontario's "Chemical Valley"*





Second of three articles depicting important effect of Hydro power on the manufacturing enterprise of the Sarnia area.)

by HARRY M. BLAKE

MORE than a century ago, when Lambton County — today, one of Ontario's leading counties in the use of Hydro power — was officially named, it incorporated the motto on the bat-of-arms of John George Lambton, first Earl of Durham, in the County Seal. Lord Durham was Governor-General at the time of the union of Upper and Lower Canada, now Ontario and Quebec. He was one of the most forward-looking statesmen of the early Victorian era, and his inspiring device: "Le Jour Viendra," has proved profoundly prophetic for the old "Huron" country laved by the waters of River St. Clair.

In 1849, when the motto "The Day Will Come" was adopted, naturally, the residents were thinking only of the growth and development that could be foreseen at the time. They could picture the clearing of the land for the development of a soil so fertile that farmers could successfully raise any kind of crop whose growth was compatible with a temperate climate. They could envisage an increase of waterborne commerce through ports strategically located on the world's greatest inland waterway; and they could anticipate the building of a highway always connecting Lambton County with the rest of Canada, as then constituted, and with the neighboring United States. A nice little parcel of prosperity in prospect, and quite sufficient to warrant the fulfilment of the promise in the slogan proudly inscribed between the maple leaves on the county seal!

Years passed. The plow turned the fertile acres. Grains, vegetables and fruits grew equally well. Railways were built. The biggest vessels on the Great Lakes

of the miles of piping and the numerous tall chimneys, large and small, at a plant of Dow Chemical of Sarnia. These vessels of glycol unit.



ESTABLISHED in 1942 at Sarnia, Polymer Corporation Ltd. occupies 130 acres. This view of plant from No. 40 Highway shows storage spheres and fractionating equipment.

traded in and out of Port Sarnia. Oil produced and refined in the district found an expanding market in Ontario industries. The demand for the good Sarnia salt exceeded all expectations. At the beginning of the present century, Lambton County Council was of half a mind to change its motto from "The Day Will Come" to "The Day Has Come." But it was only the dawning. There was still no glimmer of the astounding developments that were to take place.

### An Amazing Transformation

If a member of the committee that settled on the motto for Lambton County could return to the Sarnia district today, he would certainly be surprised, and probably not a little startled, by the spectacle he would encounter. It would be something like the experience attributed by our newspaper cartoonists to voyagers on space ships visiting distant planets.

As a matter of fact, our visitor from Victorian days would find himself in "Chemical Valley," the greatest concentration of the petrochemical industry in Canada, and possibly destined to rank among the largest in the world.

Here, near the spot where oil was first discovered in Canada, vast refineries are at work processing gasoline and a hundred petroleum products from the crude oil brought in both from the Canadian West, and from earlier developed fields in the United States.

Manufactured rubber is being produced on a scale unimagined before the second world war.

Glass fibre for thermal and acoustical insulation is being turned out.

In giant manufacturing laboratories, elements are being snatched from earth, air and water, and, combined with the

byproducts of neighboring plants, converted by modern scientific wizardry into chemical compounds, with an ever increasing range of usefulness in industry and therapeutics.

### Functions of Hydro Power

Working with characteristic smoothness and efficiency, electricity is playing a vital role in this truly marvellous development — providing every type of illumination required, pumping oil, controlling and regulating operations and, in the chemical industry, dominating essential manufacturing processes.

Ontario Hydro supplies power directly to the Canadian Oil Refineries Limited, Dow Chemical of Canada, and Fiberglas Canada Limited. Customers of Sarnia Hydro-Electric Commission in "Chemical Valley" include Imperial Oil Limited, the Sun Oil Company and Cabot Carbon of Canada Limited.

### A Public Ownership Enterprise

The Polymer Corporation, manufacturing rubber and allied products, is a public-ownership enterprise. Owning and operating a fuel-electric plant, Polymer has been supplying Ontario Hydro with surplus power since 1948.

Polymer Corporation was established in Sarnia by the Government of Canada in 1942 when the rubber plantations of Malaya and the East Indies had been cut off and largely destroyed by enemy action. (It is of interest to note that Dr. Richard L. Hearn, the Commission's General Manager and Chief Engineer, while on loan from Ontario Hydro to Polymer Corporation from 1942 to 1944, as Chief Engineer, directed the construction of this large and important Sarnia plant.)

(Continued on page 22)



RAW materials for making "Fiberglas" are dumped from hoppers into an electrically-operated collecting car. Each material is weighed to ensure correct proportions.

## THE DAY HAS COME

(Continued from page 21)

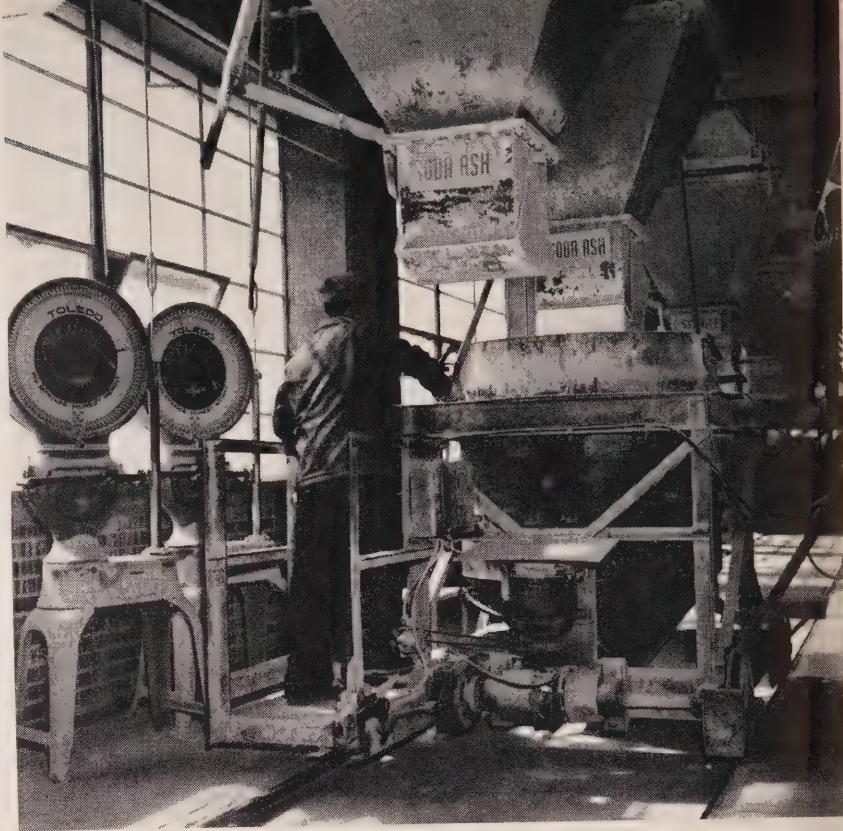
Polymer has continued to be a thriving and expanding concern, while it has succeeded in developing various product types which in many respects are superior to natural rubber. Polymer employs 2,300 persons on its 130-acre property, and boasts an average annual production of 170,000,000 pounds of manufactured rubber together with many million pounds of useful hydrocarbons.

### Large-Scale Chemical Producer

Immediately after the commencement of World War II, The Dow Chemical Company of Midland, Michigan, was invited by the Canadian Government to design, construct and operate under contract a Styrene Monomer unit for the Government-owned Polymer Corporation at Sarnia. This Styrene Monomer unit was to provide one of the major basic raw materials for the commercial production of synthetic rubber. At the time of this invitation, The Dow Chemical Company was already a commercial producer of styrene monomer which was eventually to contribute greatly to the substitution of synthetic for natural rubber. In order to carry out its important undertaking in Canada, Dow Chemical of Canada, Limited, was formed and was engaged in services for the Government until January 1, 1951.

Since the end of World War II, however, Dow Chemical of Canada, Limited, has been building up an extensive chemical business of its own. The first operation was the construction of a plastics raw material unit at Sarnia, manufacturing polystyrene, which is popularly known as Styron. Very shortly thereafter, ethylene glycol became a reality as far as the company's Canadian production was concerned, ethylene and chlorine being used as basic ingredients. Products from the glycol operations now have a very wide use in the general Canadian industrial economy. They are employed in the production of anti-freeze, explosives, textiles, resins, cellophane, etc.

In order to provide the raw material for the glycol operation, chlorine and caustic facilities were built, utilizing the



SARNIA'S progressive City Council during a recent session posed for this informal photo. Seated, l. to r., Aldermen Alex Rapson, Clayton Saylor, Thomas Guthrie, and W. H. Wright. Standing, City Manager Royden Colter, Aldermen Jack Church, Paul Blundey, Dr. M. M. Gowland, and Mayor W. C. Nelson. Alderman Gregory Hogan was unavoidably absent.

vast salt deposits located beneath the site of the Sarnia plant. The huge quantities of power required for electrolytic processes are supplied by Ontario Hydro, which erected a transformer station immediately to the south-east of the Dow site. At present the company is using an average load of 36,000 horsepower, which, it is anticipated, will be increased to 53,600 horsepower by 1957.

Following the creation of facilities for chlorine-caustic processes, units were erected at Sarnia to produce a full line

of solvents, hydrochloric acid, ammonium ethylene, styrene monomer, and other products, with plant capacity being continually enlarged.

### Manufacturers of Insulation

Fiberglas Canada Limited is a comparative newcomer to the Sarnia district, locating there in 1948. There are already plants at Oshawa and Guelph.

The development of glass fibre wool as an insulating material resulted from

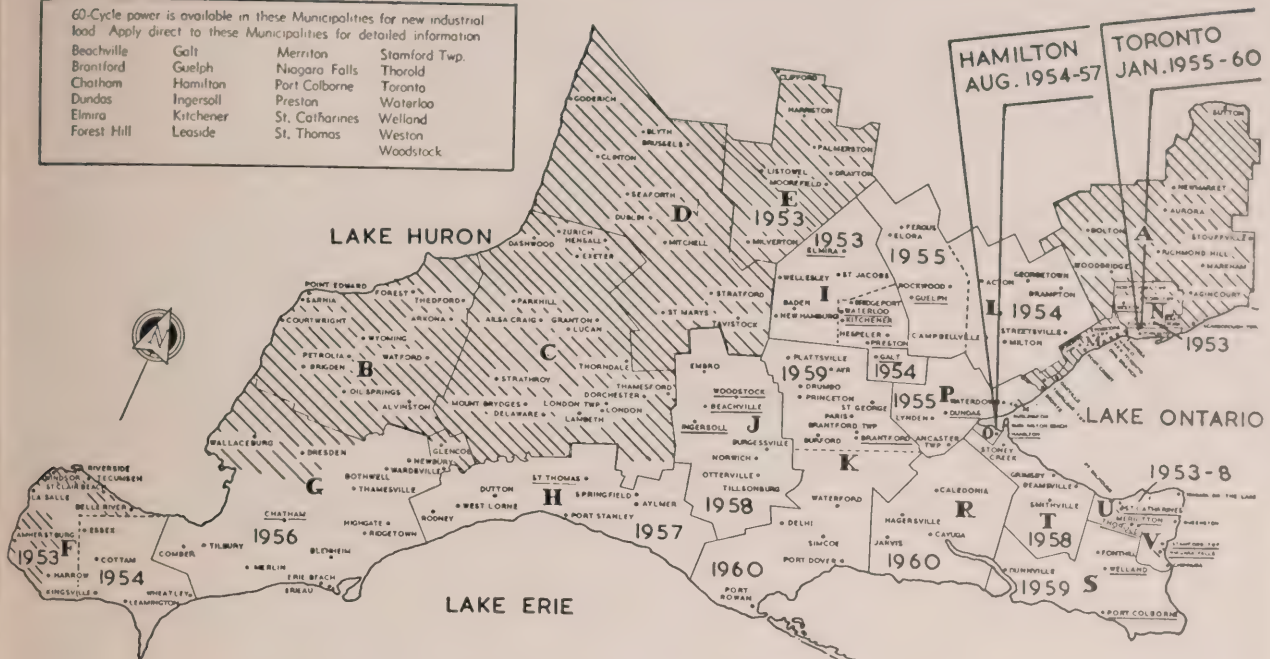
(Continued on page 27)



# TENTATIVE 60-CYCLE CHANGEOVER DATES FOR REMAINING 25-CYCLE SOUTHERN ONTARIO AREAS (Shaded Portions Indicate Areas Already Standardized)

60-Cycle power is available in these Municipalities for new industrial load. Apply direct to these Municipalities for detailed information.

Beachville	Galt	Merriton	Stamford Twp.
Brantford	Guelph	Niagara Falls	Thorold
Chatham	Hamilton	Port Colborne	Toronto
Dundas	Ingersoll	Preston	Waterloo
Elmira	Kitchener	St. Catharines	Welland
Forest Hill	Leaside	St. Thomas	Woodstock



Map indicates Ontario Hydro's TENTATIVE SCHEDULE for dates of changeover in remaining 25-cycle Southern Ontario areas. Standardization work was completed recently in the city of Windsor, and in the Township of North York. It is now in progress in a section of Essex County, and in York Township, and is virtually completed in Area "E"—the Listowel-Palmerston district. General changeover in the city of Toronto is expected to start early in 1955. All dates shown are TENTATIVE and subject to change at any time should conditions warrant.

# STEADY PROGRESS

Hydro Changeover to 60-cycle Power is  
Completed For 322,432 Customers

TOTAL of 1,846,927 frequency-sensitive appliances, owned by 2,432 Southern Ontario Hydro customers were altered for 60-cycle operation up to the end of the second quarter of 1953.

Of the tremendous number of items now powered by the higher frequency, 49,339 belong to 292,279 domestic customers. In addition, most of the 23,546 clocks and fans exchanged for 60-cycle models, also belong to domestic customers.

Domestic appliances, including 233,839 washing machines, 171,348 refrigerators, 4678 oil burners and 124,318 record players have been changed over by standardization crews since the program

was launched in 1949, and are now operating at the higher frequency in former 25-cycle areas.

Frequency standardization has been virtually completed in Area "E"—the Listowel, Harriston, Palmerston, Clifford, Drayton, Milverton, Moorefield sector.

Completion of changeover in these North Wellington municipalities indicates the steady progress being made in the tremendous task of eliminating the use of 25-cycle frequency in Southern Ontario.

For planning purposes the "25-cycle island" is mapped into 21 areas, and in five of these, in addition to Area "E," standardization has been completed. Area "A" Scarborough, Newmarket, Sutton, Bolton, Woodbridge, East York

and surrounding municipalities, completed 1950; Area "B" Sarnia and the County of Lambton, completed in 1951; Area "C" London and the County of Middlesex, completed 1952; Area "M" the Ontario Lakeshore municipalities from Swansea to Burlington, completed 1952; Area "D" the Stratford, Seaford, St. Marys, Goderich sector, completed 1952.

In addition, the city of Windsor in Area "E," and North York Township in Area "N," have also been completed.

Virtual completion of operations in six areas and work now progressing in other districts has reduced the area of the "25-cycle island" by approximately half, to some 6,000 square miles.



# ALONG HYDRO LINES



## Another Surplus At Fort William

Fort William Hydro-Electric Commission had an operating surplus of \$169,355.46 in 1952, according to a recent statement by the auditors. The Lakehead system plowed back \$139,778.47 in plant extensions during the year, leaving a net profit of \$29,576.99.

Gross earnings for the year totalled \$1,254,990.76, the report said, and expenditures \$1,085,635.30. The total operating surplus since the Fort William Commission started business is \$1,171,594, all of which has been put back into expanded facilities.

## Hamilton Hydro Employees Enjoy Niagara Picnic

Some 500 employees and families of Hamilton Hydro-Electric Commission held their annual picnic at Niagara Falls recently. Highlight was a tour of the new Niagara project by four bus loads of interested Hydro employees. His Worship Mayor Lloyd Jackson attended the outing and spoke briefly at the noon luncheon. He was introduced by General Manager A. W. Bradt. The full-day program included contests and races ranging from a rolling-pin throw for the ladies to a ski race for the men.



## WORLD PORT OFFICIALS VISIT NIAGARA

HIGHLIGHT of the annual convention of the American Association of Port Authorities, held in Toronto during the latter part of September, was a conducted tour of the Commission's spectacular Sir Adam Beck-Niagara Generating Station No. 2 project. Following luncheon served in one of the project cafeterias, the guests heard an address by Chairman Robert H. Saunders who used the large diagrammatic map shown in the photo above in describing the huge development. Mr. Saunders also stressed the paramount importance of proceeding to develop the St. Lawrence River for power and navigation purposes without further delay. Grouped around the map following the Hydro Chairman's address were, left to right, Dr. H. Apelt and C. F. Ewig, both of Bremen, Germany; P. J. Fitzgerald-Munden and D. A. Hegarty, Dublin, Eire; M. Saunders; M. C. Cadieres, Curacao; E. Prado, Mexican Consul, Toronto; E. O. Jewell, Norfolk, U.S.A.; R. G. Gutierrez, Dominican Republic; C. H. Foin, Paris, France; C. Matsumoto and Akira Ikeda, both representing Japan.

## North Bay Places New Station in Service

North Bay Hydro-Electric Commission recently placed in service a 5,000-kva substation to increase capacity from 8,000 kilowatts to 13,000 kilowatts. The new installation will relieve a condition of power overloading which has developed in that city, Manager B. M. Graham said.

"Since 1950, the rate of increase in electric load in this city has been more than twice as great as preceding years," he said. "However, even at the present rate of growth, our station capacity should now be sufficient until 1956."

Cost of the new station was slightly more than \$100,000. General design and bus structures, underground vaults and ducts were designed and constructed by engineers and staff of North Bay Hydro.

## Ottawa Hydro Customers Increase

Ottawa Hydro-Electric Commission reports a net increase of 865 customers in the first six months of the year, bringing the total to 62,756. The Commission also reported 316 new lights were installed of which 128 were replacements. Purchase was announced as well of 75 new luminaire street lights at a cost of \$1,062.00.

## Simcoe Consumption Up 10-11 Percent

Simcoe Public Utilities Commission has constructed several substations to meet annual power increases of 10 to 15 percent, reports Manager - Secretary W. D. Stalker. Among the new enlarged plants requiring power are Caswells Dairy, Drive-in Theatre, Cannery Machinery Limited, and a new Woolworth store.



## Dual-frequency Refrigerator Units Reflect Impressive Savings

Ontario Hydro has authorized execution of an agreement with Canadian Westinghouse Company providing for installation of dual-frequency units (operable on either 25- or 60-cycle power) when new units are required in some of the older 25-cycle Westinghouse refrigerators.

This will eliminate the necessity of standardizing replacement units resulting in estimated annual savings of \$190,000. The new agreement will supplement others already in effect with appliance manufacturers concerning the supply of new dual-type refrigerators. Co-operation between the Commission and manufacturers of other electrical equipment such as fluorescent lighting ballasts, ignition transformers for oil-burners, oil-burner motors and controls, 3-phase motors, pump motors, signalling bells, elevators and belt-driven motors, as well as refrigerators, has resulted in economies in the dual-frequency field which will eventually add up to an estimated \$5,000,000.

## Publish 6th Edition of Canadian Electrical Code

W. R. McCaffrey, General Manager, Canadian Standards Association recently announced publication of the Sixth Edition of the Canadian Electrical Code, Part I, (CSA Standard C22.1-1953) and also a special pocket-sized publication titled "Comparison of the 5th and 6th Editions."

The Canadian Electrical Code, Part I covers essential requirements and minimum standards for electrical installations at all potentials in buildings, structures and premises. It has been universally adopted in Canada and has the force of provincial or municipal law throughout the nation.

The sixth edition supersedes the fifth issued in 1947 and presents the Code in a simpler form that is easier to read and understand.

Copies of both publications may be ordered from the Canadian Standards Association, National Research Building, Ottawa, Ontario. The sixth edition of the Code is priced at \$1.25 per copy and the Comparison of the Fifth and Sixth Editions at 25 cents per copy.



## MEMORIAL SERVICE

Commemorating the 28th anniversary of the death of Sir Adam Beck, First Chairman of Ontario Hydro, representatives of the O.M.E.A. and A.M.E.U., Toronto Hydro-Electric System, Toronto Board of Control, and Ontario Hydro laid wreaths at the foot of the Hydro Knight's statue on University Avenue in Toronto. The group above includes Norman A. Grandfield, Galt, A.M.E.U. President; Toronto Controllers J. L. Shannon and David Balfour, Toronto Hydro Chairman Bert Merson, Ontario Hydro Chairman Robert H. Saunders, Canon F. J. Nicholson, Toronto, who gave the dedicatory prayer, and Lt. Col. A. A. Kennedy, Owen Sound, O.M.E.A. President. During the brief ceremony Chairman Saunders paid tribute to the life and achievements of the "Father of Hydro."

## Canadian Conference On Prestressed Concrete

Plans are being drawn up to hold a conference on prestressed concrete in Toronto, January 28 and 29, 1954. It is hoped that this conference, which is being sponsored by the Extension Department of the University of Toronto, in association with other interested bodies, will mark a great step forward in the development of this unique structural material in Canada, and a large attendance of structural and civil engineers is expected. Serving on the organizing committee are three members of the Ontario Hydro staff, including E. P. Muntz, Project Manager, Engineering Building; R. B. Young, Consultant, Concrete and Standards; and Harold Fealdman, Assistant Research Engineer, Structural Research Department, who is the Secretary of the organizing committee.

## Classified Ads

### SKILLED LABOR WANTED

EXPERIENCED substation troubleshooter. Please state experience, qualifications and salary required. Five-day week and excellent working conditions. Apply Hydro-Electric Commission of North Bay. Mr. O. W. Harris—Sec. Treas. Box 69, North Bay, Ontario.

### FOR SALE

ONE unit of three Westinghouse type B 20 B oil circuit breakers with compound filled cable terminating boxes and current transformer chambers. Breaker specifications — 15 KVA, 400 amp, 3 PST manually operated with 24-volt D.C. trip. Further detail and drawings available on request. Apply, A. L. Furanna, P. Eng., Chief Engineer, Public Utilities Commission, London, Ont.





## ST. LAWRENCE CONFERENCE

Within a few days after the U.S. Federal Power Commission announced approval of licensing the New York State Power Authority as the U.S. agency to develop the power resources of the International Rapids Section of the St. Lawrence River in conjunction with Ontario Hydro—the Canadian agency—officials of both organizations were hard at work discussing preliminary plans for the 2,200,000-horsepower project. The photo above was taken during the first conference held in New York during August. Front Row, left to right: Franklin J. Leerburger, Hydro Chairman Robert H. Saunders, John Burton, Chairman of the New York State Power Authority; Dr. Otto Holden, Assistant General Manager—Engineering, Ontario Hydro, and Bruce Black, Senior Project Engineer, Ontario Hydro. Back Row, left to right: Charles M. Goetz, Chief Counsel, New York State Power Authority; Dr. C. Belousow, New York State Power Authority, and Asa George, New York. A further conference relative to the proposed project between representatives of Ontario Hydro and the New York State Power Authority was held at the Commission's Head Office in Toronto on September 10.

## MORE POWER TO THE NORTH

AS a result of negotiations recently completed between Hydro Chairman Robert H. Saunders and the Iron Bridge Electrical Company, the community of Iron Bridge, east of Thessalon, will be receiving Ontario Hydro power this fall.

The people of Iron Bridge sought Hydro power when it was learned that their present source of supply would cease on October 1, 1953. At present, power is supplied by the Deagle Electric Company from their plant north of Blind River via the Iron Bridge Company.

Under the new plan, the 130 customers in Iron Bridge will be served by a 25-mile, 12,000-volt line from Ontario Hydro's George Rayner Generating Station. Staking of this line has been started and it is expected that construction will be completed by November

1, 1953. The Deagle Electric Company has been requested to continue the supply of power until this date. In addition to the customers at Iron Bridge, some 120 rural Hydro applicants between the George W. Rayner Generating Station near Thessalon, and the community will be served from the new line.

Rebuilding the 23 miles of distribution line in Iron Bridge will eventually be undertaken so that customers will receive the benefit of a more stable, higher voltage distribution system. At present the system carries 2,300 volts. This will be changed for 6,900-volt supply. With a present load of approximately 100 horsepower, Hydro customers at Iron Bridge will receive power under the Commission's standard uniform rural rate structure applicable throughout the Province.

## ALONG THE GOLDEN STRIP

(Continued from page 17)

According to conservative estimate Toronto Township, along with other municipalities in that much talked-about area, is still a boy in knee-pants when it comes to potential development.

Earlier this year, *Business Week*, noted U.S. publication, in an article entitled "The Lake Shore of Ontario: Canada's Golden Strip" observed that "Canadians feel the highway (i.e., the Queen Elizabeth Highway, which, like the Dundas Highway, traverses Toronto Township) and its environs are on symbolic of the growth potential of the 100-mile shoreline crescent between Oshawa and the Niagara frontier. They believe this area is destined to become a great industrial complex, rivaling the Midlands of England or even the Detroit-Cleveland lakefront in the U.S."

The future, under the careful guidance of a far-sighted municipal administration and an energetic executive is full of promise for the residents of Toronto Township. A willing and capable partner in the fulfilment of the township career is the Toronto Township Hydro Commission under the Chairmanship of G. D. Pattinson assisted by Commissioners, W. E. Wright, and Reeve Anthony Adamson. Guiding the technical side of the local system is the capable Manager-Secretary, R. H. Starr.

## Toronto A.I.E.E. 50th Anniversary

The fiftieth anniversary of the Toronto Section, American Institute of Electrical Engineers, was celebrated in the House, University of Toronto, October 8, beginning with a dinner at 7 p.m. in the Great Hall. An interesting program featured this event.

The present executive committee of the Toronto Section A.I.E.E. includes: W. Harmer, Chairman; C. E. MacWilliam, Past Chairman; R. J. Brown, Secretary; P. J. Croft, J. T. Fisher, G. F. Trautman, J. C. de la Rosa, J. C. Burkholder, and R. B. Steele, Directors. The Special Committee to look after the details of the anniversary included T. C. D. Church, V. G. Smith, H. C. Powell, and J. de la Rosa.



## SERVICE CALLS DROP

SINCE Windsor Utilities Commission adopted a minimum home service charge of \$1.50, the number of calls has dropped sharply, J. Clark Keith, General Manager, stated recently.

In February, a minimum service fee of \$1.50, plus material cost, was set on all service calls to the home. As well, the Windsor Commission adopted a policy of a 50-cent minimum charge on repairs made in the Hydro service department.

Previously, the commission made no charge for service calls, night or day, and only required the customer to pay for materials. In the service repair department, certain work was done at no charge and minimum rates prevailed on other work. It was found that residents of areas not served by the Windsor Commission were securing appliance repairs without cost. The Windsor Commission decided that the system of free service was inequitable with a majority saying the high cost of service for a w. Mr. Keith said the annual cost of this free service was estimated at \$65,000. He said the policy of \$5 free service on burners and switches for electric ranges in any 12-month period was still in effect.

"With increasing Hydro costs, internal economies had to be effected so that rates would not rise too sharply," Mr. Keith said. "This seemed like a good economy and most customers have been pleased. In the past the service has cost nearly \$2 per customer annually."

## PRESS PRAISE

*(Continued from page 18)*

from 2,597,200 to 4,495,100 horsepower, an increase of 73.1 per cent. Thirteen new power sources have been brought into service, and the 14th, the great new Sir Adam Beck Generating project No. 2 at Niagara, is well on the way, with an ultimate installed capacity of 1,600,000 horsepower.

"The provincial Hydro constitutes a large financial investment; its assets approached \$1,200,000,000 at the end of 1952. And it is on the way to becoming an even greater enterprise, as the St. Lawrence project, in which Chairman Saunders has been so active, takes form at last.

"Mr. Saunders has done a great job for the people of Ontario since assuming the chairmanship of the provincial commission. He is the Hydro's liaison with the public as well as the commission's head. In 1952 he reported directly to the people on 63 occasions in 29 cities and towns, made seven radio reports on a province-wide basis, reviewed and approved for distribution 216 news releases and special articles and issued the second edition of "Your Hydro Chairman Reports." This personal touch in which Mr. Saunders has always believed has explained and popularized the Hydro to vast numbers of people, and, second only to the Hydro's actual achievements, has been the most valuable and effective winner of good-will at the Commission's disposal.

"The Commission's handsomely illustrated 1952 report which has just been issued gives a clear outline of Hydro progress, and covers every aspect of Hydro's activities but one. That one is in the top secret field of atomic research — "tremendous research," Chairman Saunders calls it, in which the Hydro is represented by General Manager and Chief Engineer, Dr. Richard L. Hearn, who is director of the Crown company, Atomic Energy of Canada Limited."

## VOICES FROM THE SKY

*(Continued from page 8)*

to the equivalent of a transmitter having a power output of 50,000 watts, using a simpler antenna. This gain may be increased to be equivalent to a power of 500,000 watts, or 500kw.

Future plans call for an extension from the Niagara Station to E. V. Buchanan Transformer Station near London for telemetering and load control services via power line carrier. It is also anticipated that radio links will be used to report water levels at storage dams to the nearest generating station.

Under an agreement, arranged last fall between Ontario Hydro and The Bell Telephone Company of Canada, the Bell Company has agreed to provide the Commission with all its normal telephone requirements in areas served by the Company or associated connecting telephone companies.

However, in areas not served by the Bell Telephone or other connecting companies, Hydro's communications engin-

ers see a definite future for this important new development for providing required communication facilities, especially over rough terrain, where a normal telephone circuit would be uneconomical, due to difficulties and high costs encountered in initial construction. They feel confident that it will have a beneficial effect in helping to maintain efficient, round-the-clock electrical service throughout the Commission's ever-expanding, province-wide power system.

## THE DAY HAS COME

*(Continued from page 22)*

the discovery made only a short time ago that when molten glass is stretched out into very thin strands the resulting fibre has the flexibility of rubber and the tensile strength of steel. Experiments showed that its insulating properties extended to both heat and sound, and during the war years the Fiberglas plant at Oshawa was engaged almost entirely on orders for the Canadian and Allied Governments, supplying insulating material for aircraft, ships and many other purposes.

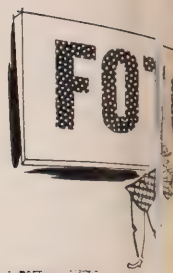
The Sarnia plant produces insulating "glass" for the building trade, and for the manufacturers of electric stoves and refrigeration equipment. It turns out a basic insulating material for acoustic tiling, pipe covering for high and low temperature application, glass fibre-wool blankets for tanks, and also roof insulation. In addition, it makes an insulating wall-board for the Canadian Navy out of fibreglas heavy cloth, the "yarn" for this product being processed at the Guelph plant.

Ontario Hydro supplies the plant with a total load of approximately 1,000 horsepower.

## Carbon Black For Rubber

Another important and essential industry in "Chemical Valley" is Cabot Carbon of Canada Limited. The newly-constructed plant of this company is located close to Polymer and is now in initial operation. Built at a cost of \$3,000,000 it is designed to produce from 35,000,000 to 50,000,000 pounds of carbon black per annum. This product is the reinforcing pigment for rubber and contributes a wearing quality to automobile tires. The Sarnia Hydro-Electric Commission expects to be called upon to supply a load of from 500 to 600 horsepower.





**VISIT TO BERLIN**—During a recent visit to Great Britain and the continent, Chairman Robert H. Saunders travelled as far as West Berlin, in Germany, a part of Europe on which international attention has been focussed for many years. A highlight of his stay in this sector of the German city, was an inspection of a power station. In the upper photo Mr. Saunders is talking to Herr R. Wissell, Technical Director of the station, (holding paper) with the lady on the right serving as interpreter.

Accompanying Mr. Saunders was R. H. Stapleford, Industrial Commissioner, Ontario House, London, England, (left, lower photo) shown chatting with Gerhard Buege, Deputy Chief of Protocol, Berlin.

**WINS "BOUQUET"** — Manager Alvin Beardsall and his staff at Ontario Hydro's Winchester Rural Operating Area office are very proud of the praise their local office has been receiving this summer. In fact, the *Winchester Press* recently awarded it the "bouquet of the week" for its tasteful appearance. Chief reason is the attractive landscaping, including the well-trimmed lawns and flower beds. Floodlighting at night has also received much favorable comment. A two-storey concrete-block structure, the Winchester R.O.A. office accommodates a staff of approximately 30 along with local equipment and serves approximately 4,450 customers.







**FROM NEAR AND FAR** — Construction at Hydro's 2,000,000 horsepower — eventually to be 1,828,000 horsepower — Sir Adam Beck-Niagara Generating Station No. 2 project is having a profound effect in many spheres. Not only is it providing employment for about 7,800 persons at Niagara Falls, but throughout Ontario and other places in Canada, industrial plants are busy turning out equipment for the big development. Here four sections of one of the new generators for the project are ready for shipment from the Canadian Westinghouse Company plant at nearby Hamilton. Each generator weighs almost 100 tons and the rotor weighs 300 tons. An object on the rim of the rotor would travel at a speed of 130 miles per hour. The stator of this generator contains 77 miles of wire, which weighs over 15 tons. The copper in the rotor weighs almost 35 tons. Overall height of the generator is 30½ feet and its diameter is 29½ feet. Some 30 railway cars will be required to ship all the components of each unit.

**DISTINGUISHED GUESTS** — Vying with, if not actually outstripping, the famous twin cataracts at Niagara Falls as a tourist attraction, is Ontario Hydro's new Sir Adam Beck-Niagara Generating Station No. 2 project. On August 8 this year, Hydro was host to a party of high ranking officers representing the three services of various countries of the British Commonwealth. These officers, now on course at the Imperial Defence College in Britain, were on a tour of strategic military and industrial sites in Canada. Here a group of the officers, including Major-General C. B. Fairbanks, Directing Staff Officer; Major-General M. A. Latif-Kahn, M.B.E., Pakistan Army; Lieutenant-Colonel F. C. Horton, M.B.E., Royal Marines; Captain B. W. Taylor, D.S.C., Royal Navy; Air Commodore E. M. F. Grundy, O.B.E., R.A.F., and C. W. D. O'Neill, look on as Project Manager Gordon Mitchell (centre), describes the intake works for the development.





# Electric Dikes

by Allan A. Jones



CONCRETE building houses electric pump on Skinner Drain System which lifts water from ditch (indicated by G. E. Hennenfent, left), into river which empties into Lake St. Clair.

ELECTRIC water pumps for drainage system were important items in Wallaceburg-Dresden area changeover. Here J. L. G. Beatty and G. E. Hennenfent check an altered 75-hp. motor.



MANY years ago, so the story goes, a little Dutch boy, Hans, was walking along the dikes with his young brother when he noticed water trickling through a hole in the dike. Sensing danger immediately, he thrust his finger into the hole. Meanwhile his small brother was hurrying to warn the burghers of Haarlem.

Through the boy's prompt action, a possible catastrophe was averted, but it illustrates the constant battle the Dutch wage against the sea.

Residents of the Wallaceburg-Dresden district of Southern Ontario had, perhaps, more reason than most to recall this famous Dutch legend when recent floods in Holland caused incalculable damage and hardship. For in this part of the province, as elsewhere in southwestern Ontario, the danger of flooding is also a major problem. Much of the area lies below the level of the Sydenham River on which both Wallaceburg and Dresden are situated, and in the last 50 years, on at least two occasions, floods have left close to three feet of water on the land.

## "Little Holland"

The fact that the district is a sort of "Little Holland" as far as flooding is concerned was brought to light by the Ontario Hydro's recent program to switch over the area from 25- to 60-cycle power. A major aspect of that job was the alteration of a number of big electric water pumps forming part of the intricate and efficient system of flood control that has been developed over the years by district residents.

Unlike Holland they don't build dikes to hold back the water. Instead, the countryside has been interlaced with a wide drainage ditches which draw off





PARTNER to the electric pump on the opposite page in the Skinner system is this huge waterwheel which, with the pump, carries water from about 5,600 acres of farmland.



cess water, which is, in turn, lifted by pumps and emptied into the various streams and rivers which drain into Lake St. Clair.

The electric pumps, which are, in some cases, paired with older steam or diesel-driven water wheels, are of tremendous importance, both to the economy and safety of the district, and provide an outstanding illustration of the various ways in which electricity can be harnessed for public service. Indicative of their economic utility, for instance, is the fact that the increasingly effective flood protection in the area has, over the years, helped increase land values at an almost phenomenal rate.

Though it benefits everyone, the flood control system is probably of the greatest immediate importance to farmers. This is in the fertile farm land, where serious floods could destroy an abundant harvest of tomatoes, sugar beets, corn and soy beans, and smaller crops of fall wheat. To protect this harvest, which makes a significant contribution to the province's

annual agricultural output, the pumps must work overtime during the crucial periods—late winter, and early spring.

### The Old Wheel

When Ontario Hydro standardization crews came to deal with 60-cycle change-over of the electric pumps, they found them spread over the countryside as part of smaller separate drainage systems, most of which are named after local men instrumental in developing flood control in the district.

In one—the Skinner Drain System just outside Wallaceburg—the Hydro men found an interesting contrast between the new and the old. For actual change-over, Skinner Drain presented a 75-horsepower electric motor driving a gear-pump, neatly enclosed in a small concrete-block house straddling one of the many drainage ditches in the area. Not far away, and working as partner to the new electric pump, was a huge water-wheel, more than 50 years old, packed tightly into an old barn.

### Dates Back to 1902

The old wheel, a towering 36-foot diameter giant, with scoops like those on a steam shovel, has a history dating back to 1902, when it superseded a Japanese paddle wheel. It was installed by one John Skinner, who had, even as far back as 1885, attempted to provide drainage for land in the Wallaceburg area.

The two pumps—the electric, and the water wheel, are regarded as guardian angels to some 60 farmers in the area. With a combined pumping capacity of 58,000 gallons of water per minute, they manage to drain 5,600 acres of land, or close to two square miles. With these, and others like them, Wallaceburg-Dresden residents expect to be able to continue staying off floods or the possibility of floods, and to keep their "little bit of Ontario" free from the periodic irruptions which beset Holland.



# HYDRO

## Home Forum

by EDITHEMMA DIGHTON  
Hydro Home Economist



There may be some folks who longed for the good old days when they looked at Hydro's old-style kitchen in this year's C.N.E. exhibit. Interesting as it was, we can still recall when we had to clean lamp chimneys, beat rugs, fill wood boxes or pump pails of water for the big farm home. We'll take today's living, or better, tomorrow's.

Who has tried broiling in a closed oven? This can only be done in a few new-type electric ranges. In the ranges where this is possible the top oven element regulates the heat at about 600 degrees, shutting off automatically. So if the top of the food is four inches from the heat, there is no smoke and less steam. The results are excellent.

Don't forget that it's necessary to start with cold water when making coffee in an automatic appliance. Even though it requires 15 to 20 minutes, the coffee will be kept piping hot (without caffeine) for hours afterwards. It uses very little electricity.

Be sure water is piping hot for washing dishes in an electric washer. It may only require 5 quarts but temperature should be over 160 degrees.

This is the first year we have seen an electric refrigerator with a freezing unit at the bottom. Furthermore there's ample space for chilling salads and desserts.

When you buy a toaster, peek into it and under it. Select one with four or more guard wires to prevent the bread from warping. Then, too, see that the crumbs can be brushed out without touching the electric element.

Electric rangettes are amazingly useful! They operate well on a circuit when only the rangette is being used. Remember to use one cup of water to cook vegetables

in saucepans with tight-fitting lids. Turn heat from high to low. In case of spill-overs, sprinkle nutmeg on the element, never salt as the latter will cause the ends of the elements to deteriorate.

### JEFFY GRAPE JUICE

Wash Concord grapes. Place 1½ cups of whole grapes in each sterilized quart jar. Add ½ cup granulated sugar to each jar. Fill each jar to overflowing with boiling water. Seal tightly and let stand 6 weeks before using. Strain when ready to use.

### GRAPE JELLY

(made with blue and green grapes)  
2½ lbs. blue grapes  
2½ lbs. green grapes  
1 cup water  
sugar (see below)

Wash and stem grapes. Crush slightly in kettle. Add water. Stir while bringing to a boil, over electric element at medium. Simmer 10 minutes. Turn into wet jelly bag and squeeze gently. Measure juice into deep kettle and for each cup of juice add ¾ cup of sugar. Bring to a boil slowly, stirring until sugar is dissolved. Then boil rapidly. In 6 or 8 minutes, test for jelly stage. When syrup dripped from side of spoon forms two drops that flow together, remove from electric element at once. Remove scum using silver spoon. Then fill jelly glasses to within ½ inch from top. Wipe edge of glasses. Pour on a thin layer of melted wax. Cover with metal tops when cool. Label and store.

We find that we can cook our favorite meal for four in a rangette oven using aluminum foil. Wipe 4 or 5 cut-up pieces of chicken and place on 2 large pieces of aluminum foil (cross the 2 sheets of foil). Sprinkle with salt, pepper and monosodium glutamate, then add 3 tbsps. mushroom soup. Fold edge of foil to form a bag. Place on cookie sheet and bake at 350 degrees for 2 hours. Place peeled onions for four in foil; add salt and 2 teaspoons water, close foil and bake alongside chicken. Also prepare carrots in same way. For dessert, place a deep casserole of lemon meringue on the cookie sheet for dessert. A big meal in a little oven, with few dishes to wash!

Jelly-Making precautions: (1) do not use more than 6 or 8 cups of juice and sugar at one time. (2) Be sure to stir with a wooden spoon across the large kettle. (3) Follow recipe and measurements carefully. (4) Use a piece of factory cotton for a jelly bag. (5) To sterilize odd-sized jars, scrub each in soapy water, rinse and turn upside down in baking dish or kettle. Add 1 inch warm water. Place in electric heated electric oven of 275 degrees for 25 minutes or before starting to make jelly.

All green cultivated grapes, Canadian grown, may be used for jelly or jam. However, the color of the finished product is not too attractive unless mixed with blue grapes.



# The miracle on your wall

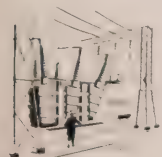


**Behind the familiar wall switch lies the far-sighted planning and ingenuity of Canada's electrical industry that provides the low-cost power and efficient equipment which is helping to raise our standard of living.**



When you want light in a room, you just flick a switch. It's as simple as that. And, if that minor miracle is taken for granted, consider a few of the other tasks electricity performs in the home.

It cooks complete meals while you are out—takes the labour out of cleaning, polishing, washing and ironing—keeps perishable foods in perfect condition, for months if necessary—supplies constant hot water—brings you radio and television entertainment—and helps to keep your home cosily warm in winter and delightfully cool in summer. This is fast becoming the pattern of living in even remote Canadian homes today.



While the role played by electricity in the home naturally looms large with all of us, it should always be remembered that by far the larger part of the power generated is used by industry. In fact, it is primarily because of the availability of this dependable source of power that Canada has been able

to develop her aluminum, pulp and paper, mining and manufacturing industries to their present position—which, indirectly, adds to the prosperity of all Canadians.



When you flip that familiar switch on the wall, have you ever given a thought to the amazingly intricate system of power equipment that lies behind it?

From the start, the story of Canada's electric utilities has been one of phenomenal increases in demand for power being constantly met, with the result that Canada has become one of the most highly electrified nations in the world. And, as always with this enlightened industry, tomorrow's needs are being taken care of by today's planning.

This Company engineers, manufacturers and supplies a complete line of electrical equipment including generators, transformers, switchgear, wire and cable for the generation, transmission and distribution of electric power—as well as the motors and control, electronic devices, appliances, lamps and other products that put it to work.

We, of Canadian General Electric, take pride in the fact that electric power has become the pulse of the Canadian way of life because—as Canada's oldest and largest electrical manufacturer—we have helped to make it so.



**CANADIAN GENERAL ELECTRIC COMPANY  
LIMITED**

**HEAD OFFICE: TORONTO**

*Canada's Oldest and Largest Electrical Manufacturer*

(This advertisement, portraying the dominant role of electricity in the daily lives of Canadians, appeared in several Canadian newspapers during September this year.)

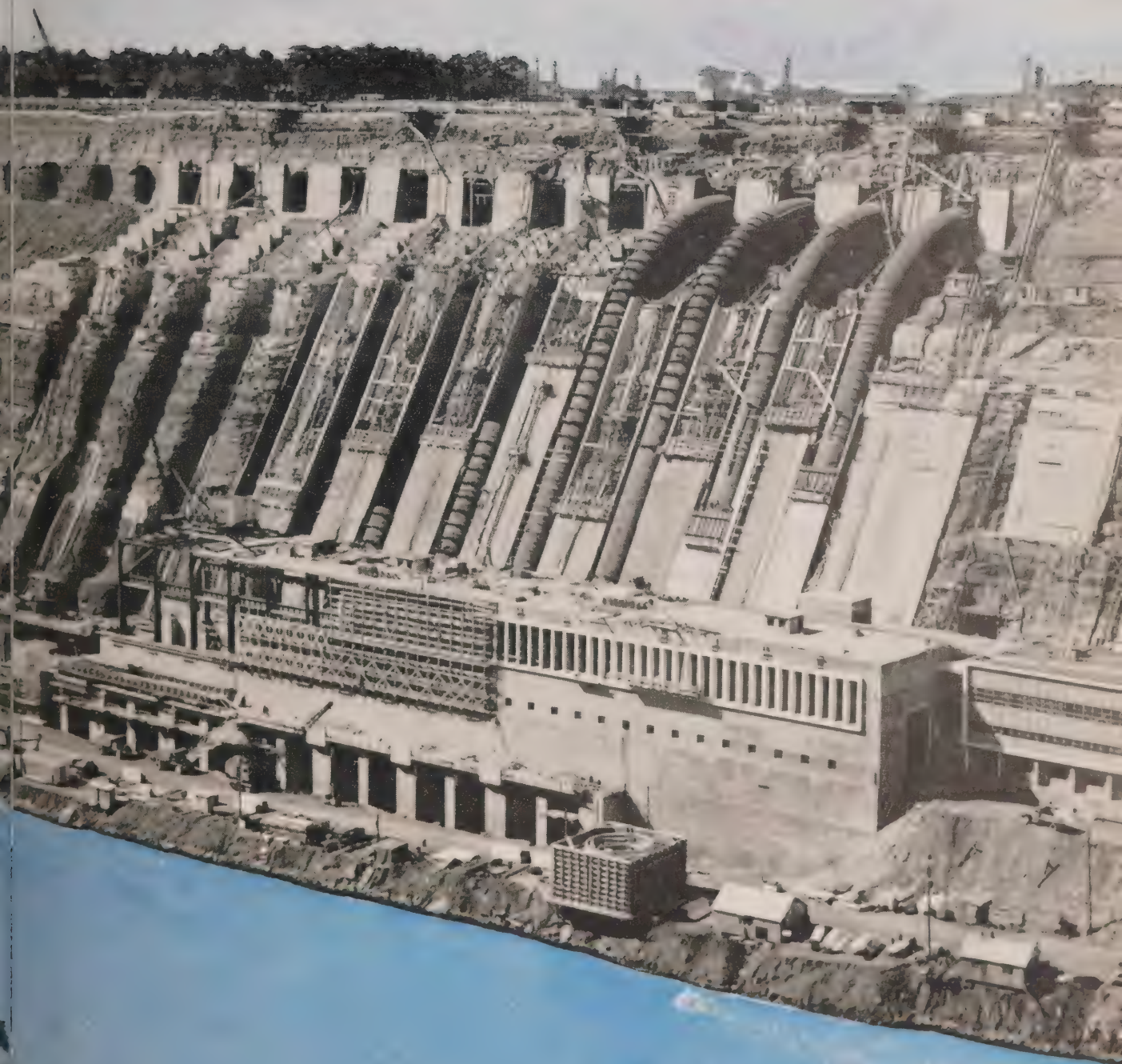






ONTARIO HYDRO

# *News*



OCTOBER, 1953  
VOLUME 40, NUMBER 10



OCTOBER, 1953

Vol. 40, Number 10

Published by

THE HYDRO-ELECTRIC POWER COMMISSION

OF ONTARIO

620 UNIVERSITY AVENUE, TORONTO



## GREAT CHANGES

**S**PEAKING over a province-wide network of Ontario radio stations recently, Hydro Chairman Robert H. Saunders took the opportunity of answering publicly a query which had been put to him verbally during a private conversation. He recounted that a gentleman had asked him when Ontario Hydro would return to its 1939 slogan: "Hydro is yours — use it!"

In explaining why this would not be possible "for many years to come," the Hydro Chairman, cited, for example, the phenomenal increase in the number of customers served directly or indirectly by the Commission in the past 14 years: 1939—721,997 customers; today—well over 1,317,000. The average domestic consumption in 1939 was 170 kilowatthours per month, compared with 351 kwhrs. today.

Hydro has not only paced, but has, in fact, been the motivating force behind the great industrialization of this province. In 1939 the gross value of Ontario's manufactured products was \$1,745,674,707. In 1952 the province produced goods worth approximately \$8.5 billion.

How have these truly spectacular increases influenced power demands? In 1939 they totalled 1,765,500 horsepower compared with a figure of 4,394,500 hp. today. In meeting these ever-increasing electrical requirements, the Commission has augmented its resources from 2,089,142 hp. in 1939 to a present total of 4,495,100 hp.

But power demands continue to move inexorably upward! Every new day finds Ontario Hydro bending all its efforts toward fulfilment of the insatiable needs of this electricity-hungry province. At this moment Hydro is building an addition to its Pine Portage Generating Station on the Nipigon River to increase its capacity to 168,900 horsepower. A construction force of some 7,000 persons is engaged on the Sir Adam Beck—Niagara Generating Station No. 2 which will have an ultimate capacity of 1,828,000 horsepower. In June the fourth unit (134,000 hp.) of the Richard L. Hearn Steam Generating Station was placed in service giving this plant a total installed capacity of 536,000 hp. when all units are operating at 60 cycles. During October the fourth unit at the J. Clark Keith station in Windsor was completed. This station now has a capacity of 354,000 horsepower. During September this year Ontario Hydro and the Detroit Edison Company completed interconnections between the two systems assuring Ontario an additional power supply of approximately 400,000 horsepower. Frequent meetings of Ontario Hydro, Canadian Government and New York State Power Authority representatives are taking place relative to the great St. Lawrence Seaway and Power Project.

As this issue goes to press, Ontario Hydro's engineers are proceeding with the development of the recently-approved Manitou Falls site on the English River which will add another 46,200 horsepower to the Commission's resources in Northwestern Ontario.



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## CONTENTS

	Page
A Link with the Past	-----
Welcome News	-----
Early Start	-----
Great Challenge	-----
Hydro Names in the News	-----
Announce Senior Appointments	-----
Another Step Forward	-----
Hydro Scholarships	-----
First 50 Years	-----
Previews of Progress	-----
Along Hydro Lines	-----
Foto-News	-----

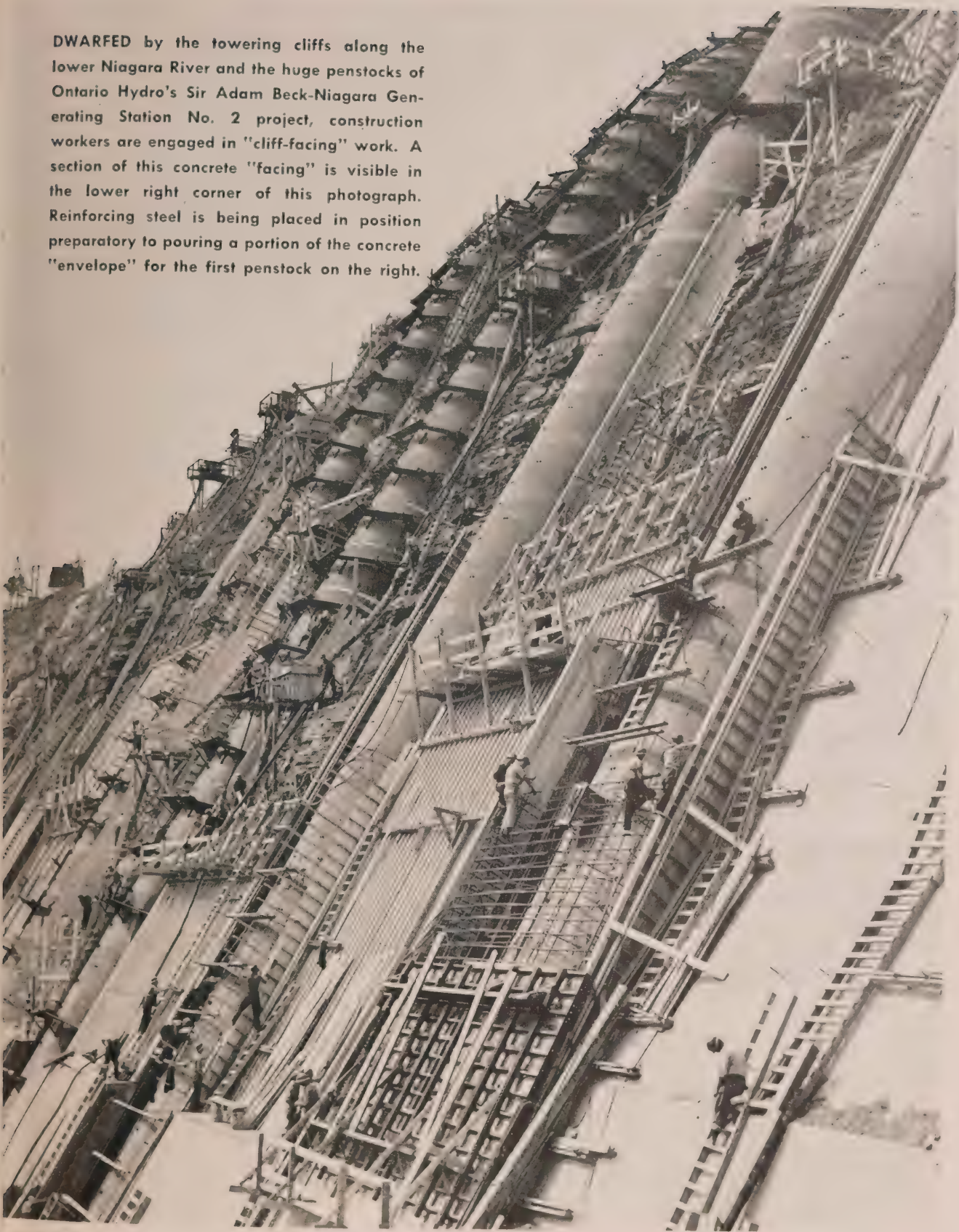
## COVER PHOTOS

**O**UR front cover this month provides a striking view of the latest progress on the steel framework and penstocks associated with the new and modern powerhouse of Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2 development. The 1,428,000-horsepower phase of this project is advancing on schedule, with first power expected early in 1954.

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DWARFED by the towering cliffs along the lower Niagara River and the huge penstocks of Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2 project, construction workers are engaged in "cliff-facing" work. A section of this concrete "facing" is visible in the lower right corner of this photograph. Reinforcing steel is being placed in position preparatory to pouring a portion of the concrete "envelope" for the first penstock on the right.







LAURA SECORD

# A LINK WITH THE

**Restored and Maintained by Ontario Hydro, Famous John DeCou Stone House Property Officially Designated as an Historic Site**

**A**N IMPORTANT link with Canada's colorful past—the John DeCou Stone House property, a Niagara District landmark—has been perpetuated by Ontario Hydro as an historic monument.

Located on the Stone Road, three miles south of St. Catharines on part of a section of land acquired by the Commission in 1942 in connection with the construction of the new DeCew Falls Generating Station, the property was officially declared an historic site by the Hon. Leslie M. Frost, Prime Minister of Ontario, during an impressive ceremony on October 13 this year.

Participating in the ceremony with Premier Frost, Hydro Chairman Robert H. Saunders said the preservation of the DeCou House by the Commission was in keeping with its policy of restoring

and maintaining historic landmarks situated on its properties, as a tribute to the pioneers who laid the foundations of the nation.

Date of the ceremony—October 13—was of special significance, for on that day, in the year 1812, General Sir Isaac Brock, one of the great figures of the War of 1812-14, led his army in a victorious battle against invading American troops at Queenston Heights. During this attack, the famous soldier received mortal injuries. A towering column, surmounted by an effigy of Brock, crowns Queenston Heights today in grateful memory of his achievement.

In the following year—1813—the tide of battle turned against the British who were forced to retreat to Burlington Heights near Hamilton, leaving only a

small force at the John DeCou Stone House under Lieutenant James Fitzgibbon.

## Famous Journey

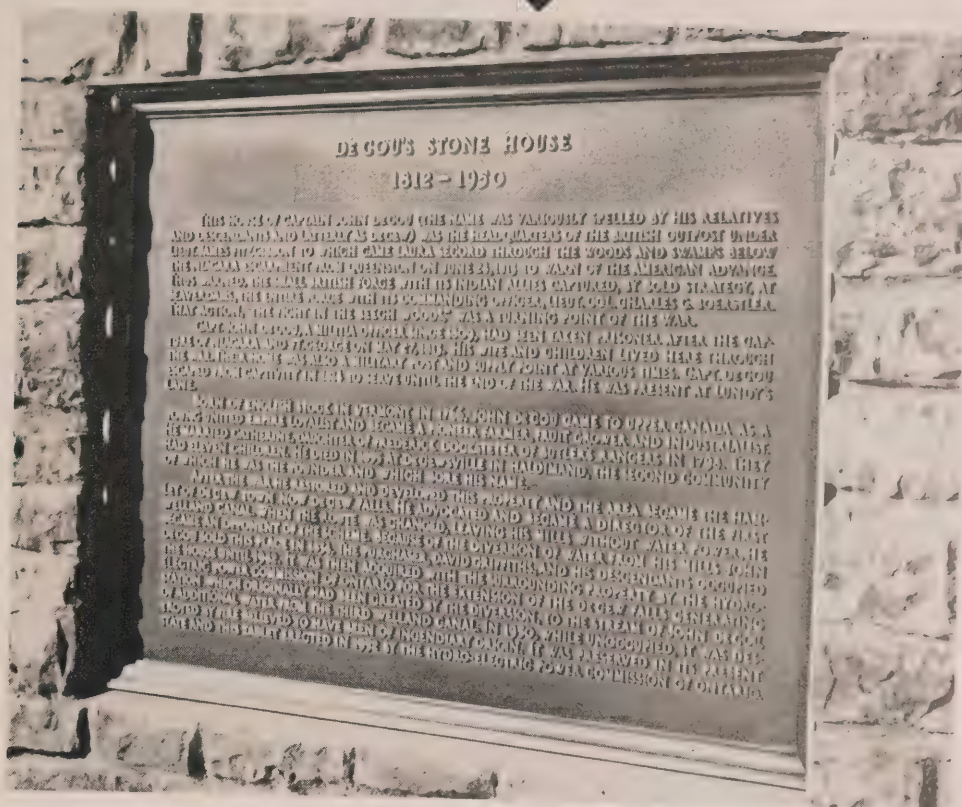
On June 23 that year, in the Village of Queenston, Laura Secord, wife of James Secord, heard American soldiers billeted in her home, discussing plans to overpower Fitzgibbon's party. She counsel with her husband, who was at the time, and they decided that they should make the perilous 20-mile journey on foot to warn Fitzgibbon.

Unaware that she was embarking on such a famous trek, she stole quietly away from the house, reaching St. David by sunrise on the following morning where she was joined by a niece, Elizabeth Secord. (Certain history)

(Continued on page 4)



PERPETUATED by Ontario Hydro, John DeCou Stone House, left, features a large bronze plaque, below, which records the interesting story of the old house and the place it occupies in Canadian history. The Commission has built a circular driveway and landscaped grounds around the house.



AST

MEMORIES of the War of 1812-14 were revived on October 13 when the John DeCou Stone House near St. Catharines was declared an historic site by Prime Minister Leslie M. Frost. Shown below at the unveiling of a bronze plaque are: T. Roy Woodhouse,

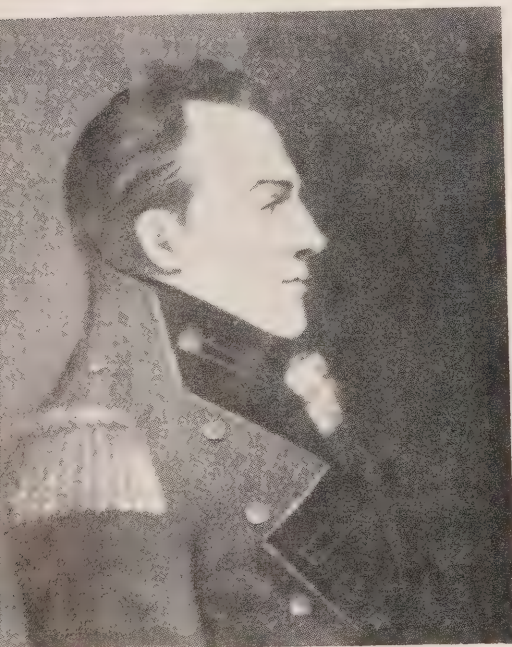
President the Ontario Historical Society; Mr. Frost, and Robert H. Saunders, Ontario Hydro Chairman. A colorful feature of the event was the presence of military guards attired in traditional British "redcoat" uniform of that era, as well as R.C.M.P. officers.







DESCENDANTS of John DeCou were present at the declaration of the John DeCou Stone House as an historic site by Premier Frost. Shown before the bronze plaque at the impressive and colorful ceremony are: Mr. Frost; Dr. Harold W. Hedley; Chairman Robert H. Saunderson; Adrienne Hedley; Mrs. J. W. Hedley; Misses Lillian and Laura Hyatt; T. Roy Woodhouse, President, Ontario Historical Society; Mr. C. Johnston and Howard DeCew Townse. Flanking the group were guards dressed in scarlet tunics reminiscent of the War of 1812.



General Sir Isaac Brock

record that the intrepid woman drove a cow ahead of her, but local historians today dispute that report.) To avoid American patrols, the two women followed an old Indian trail from St. Davids to Shipman's Corners (now the intersection of St. Paul and Ontario Streets in St. Catharines).

From this point the Canadian heroine hurried on alone to the DeCou House.

Acting on her warning, Fitzgibbon and his men, with their Indian allies, captured the entire American force, with its Commanding Officer, Lieut.-Col. Charles G. Boerstler, by bold strategy. That action, now known as "The Fight in the Beech Woods," was an important turning point in the war.

Thus did Laura Secord and the stone house of John DeCou take their places in the bright pages of history.

#### John DeCou's Career

Equally memorable was the career of Captain John DeCou, first occupant of the famous house. Born of English stock in 1766, he came to Upper Canada as a young United Empire Loyalist, and became a pioneer farmer, fruit grower and industrialist. He married Catherine Docksteter in 1789. They had 11 children. A militia officer, he was taken prisoner during the capture of Niagara and Fort George on May 27, 1813, almost a month before Laura Secord made her famous journey to his home. DeCou (the name has been spelled in various ways by his relatives and descendants, latterly as "DeCew") escaped in 1814, participating in the Battle of Lundy's Lane.

After the war he restored and de-

veloped this property, and the area came known as the Hamlet of DeCou Town (now DeCew Falls). He succeeded and became a director of the Welland Canal. When the route changed, leaving his mills without water power, he became an opponent of the scheme. He sold his stone house in 1855. He died in 1855 at DeCewville in Hamilton County, the second community which he was the founder, and which still bears his name.

The DeCou Stone House was occupied by David Griffiths and his descendants until 1942 when it, with the surrounding property, was acquired by Ontario Hydro for the extension of the DeCew Falls Generating Station.

In 1950, while unoccupied, it was destroyed by fire, believed to have been of incendiary origin. In view of its intimate association with Canadian history, Ontario Hydro recently took steps to serve the remains of the house.

A flagstone floor was built and existing Queenston limestone walls, six inches thick, were left intact to the height of the ground floor window. Grounds around the house were



scaped and new stone piers were erected at the two driveway entrances.

A large bronze plaque, recording the interesting history of the old house, was set into a cairn-like structure, forming part of the back wall of the venerable structure.

This unique backdrop provided the setting for the recent ceremony designating the property as an historic monument. Appropriately enough, T. Roy Woodhouse, President of the Ontario Historical Society, was present and acted as Chairman during the commemoration.

Taking a special interest in the proceedings were fellow-members of the Ontario Historical Society, in company with members and officers of local Niagara historical groups, civic and Ontario Government officials, as well as representatives of Ontario's Niagara Parks Commission, Niagara Frontier Parks Commission (U.S.), the Rainbow Bridge Commission, and several descendants of both Laura Secord and John DeCou.

#### Past and Present

Representing the past and present, and adding a touch of color to the event were the uniforms of guards dressed in the British "redcoat" uniforms of the 1812-14 era, and the brilliant uniforms of the internationally-famous Royal Canadian Mounted Police.

Unveiling the plaque and declaring the property an historic site, Premier Frost paid tribute to the memory of those countless Canadian pioneers "who knew it was their duty to defend and perpetuate this great country."

"Here was the beginning of that confidence which Canadians have in their land. Today we can see the justification of that confidence, which should give us renewed strength to meet the challenge of the years ahead," he said.

Expressing his keen personal interest in Canadian history, Ontario's Premier congratulated the descendants of Laura Secord and John DeCou, present at the ceremony, on the fine heritage that was theirs. He also commended the Ontario Historical Society and Ontario Hydro for their initiative in preserving the landmarks throughout Ontario which pay tribute to the fortitude and unswerving devotion of the early settlers.

As a fitting climax to the ceremony, W. G. Taylor-Munro, President of St. Catharines Ministerial Association, dedicated the plaque erected by Ontario Hydro to emphasize and perpetuate the DeCou House occupies in Canadian history.



RECALLING Laura Secord's visit to John DeCou's Stone House in 1813, the bronze plaque, set into a cairn-like structure in the rear wall of the historic home, was erected by Hydro in 1952.



SHOWN at the plaque are: Premier Frost, Cecil Secord, direct descendant of Laura Secord, and member of the Ontario Niagara Parks Commission, and Hydro Chairman Robert H. Saunders.



## No Increase In Wholesale or Rural Power Rates Necessary In 1954 or in the "Foreseeable Future," Chairman Saunders Tells Northwestern O.M.E.A. Delegates

ONTARIO HYDRO anticipates that it will not be necessary to institute a general wholesale rate increase during 1954 nor in the foreseeable future.

That welcome announcement was one of the major points of an address by Hydro Chairman Robert H. Saunders at the recent annual convention of District 3 O.M.E.A.

Held at Dryden this year, the convention attracted approximately 100 delegates from many points in Northwestern Ontario. Mr. Saunders' address, delivered at the conclusion of the convention's main banquet, reached a wide audience in the Northwestern section of the province through the facilities of Radio Stations CKPR at Fort William and CFPA at Port Arthur.

In dealing with the rate question, the Hydro Chairman stressed that his announcement applied to both municipal and rural customers of the Commission.

"May I say to the municipal commissions and to rural Ontario, we believe that our present wholesale rate structure and also the present rural rate structure are sufficient to maintain a sound financial condition, and that no increases will be necessary for 1954, or, in fact, for the foreseeable future."

### Water Rentals

While on the question of rates, Mr. Saunders took the opportunity to dispel a misconception respecting water rentals for generation of power paid by the Commission.

During 1952, Ontario Hydro paid an average of over \$20,000 per week or total of \$1,049,000 for Niagara River water alone. By the end of 1956 when the first 12 units of the Sir Adam Beck - Niagara Generating Station No. 2 are in operation, the Commission expects to pay about \$1,800,000 per year.

EXTREMELY warm weather forced members of the 1953-54 District 3 executive to remove their coats during the sessions. Front row, left to right: Honorary Vice-President—Lt. Col. A. Kennedy, Owen Sound, President of the parent O.M.E.A.; President—J. D. Phillips, Schreiber; Honorary President—Hydro Chairman Robert H. Saunders; Past President—May William Fuller, Sioux Lookout. Back row, l. to r.: Director—Edward Sherwood, Dryden; Vice-President, E. R. Freeman, Port Arthur; Second Vice-President—C. H. Moors, Fort William; and Secretary-Treasurer, A. W. H. Taber, Fort William. Directors absent were A. E. Olst Kenora and Mayor J. T. Livingston, Fort Frances.



# WELCOME NEWS





MEETING of the 1952-53 executive, prior to the open business session, included consideration of several resolutions. Group includes, left to right: Mayor C. J. Wright, Dryden; N. H. McLennan, Port Arthur; D. P. Cliff and Lt. Col. A. A. Kennedy, parent O.M.E.A.

Secretary-Treasurer and President respectively; J. R. Pattison, Fort William; J. D. Phillips, Schreiber; Mayor William Fuller, Sioux Lookout, and Secretary-Treasurer A. W. H. Taber, Fort William. Business sessions were held in the municipal building at Dryden.

"Last year municipal taxes and water rentals amounted to over \$3,573,000, and during the past five years—1948 to 1952 inclusive—they totalled over \$12,276,000," he stated.

### Separate Entities

The speaker also dealt with the disconnection between the municipal and rural systems operated by the Commission. In this connection he established the following points:

(1) Rural is a completely separate and distinct financial entity. It has no financial connection with the Commission's municipal system, which serves 318 cost municipalities, 11 fixed rate and 33 local systems.

(2) Each system must and does stand on its own feet.

(3) There is no financial connection between either the municipal or rural systems in the Northern Ontario Properties and the municipal or rural systems in the Southern Ontario System. Each is a separate and distinct financial entity.

(4) In the Northern Ontario Properties, which, of course, takes in this separate entity, the Commission operates as Trustee for the Ontario Government.

(5) In Southern Ontario, Ontario Hydro operates the Municipal system as Trustee for the municipalities. The rural is a separate entity and must stand on its own feet financially.

(6) Since January 1, 1944, the rate structure applying to the farm, hamlet, commercial and summer service customers has been uniform throughout the province. All rural customers in these groups, for the same class of service, with the same consumption of electrical energy pay the same amount. In other words, while rural in Northern (including Northwestern) Ontario has no financial connection with Southern Ontario, its people do pay the same rural rates as are paid in Southern Ontario, the Trustee (Ontario Hydro) being protected by the Ontario Government.

Turning to the question of rates charged to municipal and rural customers, Mr. Saunders said that "density (of customers per mile) has a tremendous influence on rates."

It is impossible, he said, to serve the lower density in the rural systems throughout Ontario at the same, or nearly the same rates at which the cost municipalities, with their tremendous number

of customers per mile, can serve their customers.

Many factors were responsible for the last increase in rural rates, he continued. Such factors as higher costs of labor and materials were common to both Northern Ontario Properties and the Southern Ontario System. The increased use of fuel-generated power was a major cause of the higher rate in Southern Ontario. On the other hand, higher investment per customer, higher cost per customer because of lower density, and a lower revenue per customer were factors influencing the increased rate for rural customers in Northwestern Ontario.

Mr. Saunders quoted actual figures to illustrate these points.

### Capital Investment

In Northwestern Ontario the capital investment per customer last year was \$830, compared with \$401 in the Southern Ontario System.

It costs Ontario Hydro \$75.10 per year to serve a rural customer in Northwestern Ontario, where the customer density per mile is 5.22. In Southern Ontario, with a customer density of 8.71 per mile, the cost of serving each customer is \$67.44 per year.

(Continued on page 8)





**DURING** visit to Ontario Hydro's Ear Falls Generating Station, Dan Mills, Chief Operator (left) answers questions of A. W. H. Taber, R. A. Taylor, and Thomas Leeney, Fort William; William Skinner, Schreiber, and Leo Hulko, Manager of Port Arthur R.O.A.

In Southern Ontario the annual revenue per customer is \$67.52 compared with \$49.25 in Northwestern Ontario.

Turning to the question of average cost per kilowatthour, he said this depends on the rate structure as it is influenced by the use of power.

"The higher the use, the lower the average cost per kilowatthour, and conversely of course, the lower the use, the higher the average cost per kilowatthour."

Thus, the average cost per kwhr. is higher in Northwestern Ontario, because against an overall use throughout all systems of 3,035 kwhrs. per year, Northwestern rural customers use only an average total of 2,168 kwhrs. annually.

#### Power Situation

Reviewing the power situation throughout Ontario, the speaker referred to the steps being taken to provide Ontario with an ample supply of low-cost power, including construction of the Sir Adam Beck-Niagara Generating Station No. 2 (ultimate installed capacity—

1,828,000 horsepower), and the continued pressure for permission to proceed with the St. Lawrence Development.

Indicating Ontario Hydro's faith in the future of Northwestern Ontario, was the extension being constructed at the Commission's Pine Portage Generating Station on the Nipigon River. Here, he said, the third and fourth units were being built to raise its dependable peak capacity to 168,900 horsepower by early 1955.

Of equal significance was Mr. Saunders' statement that the Commission would soon undertake construction of a new 46,200-horsepower generating station at its Manitou Falls site on the English River.

"Our studies indicate that power from this station will be needed in this section of the province by March, 1956."

The Commission, he said, has also authorized construction of a steel tower transmission line from the Lakehead to Marmion Lake.

#### Noon Luncheon

Presiding at the initial noon luncheon and at succeeding sessions was President William Fuller, Mayor of Sioux Lookout,

while the welcome to the delegates was extended by Mayor C. J. Wright, Dryden. Registration and all details of the convention were capably handled by Secretary-Treasurer A. W. H. Taber, assisted by Thomas Leeney, both of Fort William.

Luncheon speakers included W. R. Strike, Q.C., Second Vice-Chairman, Ontario Hydro, who dealt with recent changes in the Public Utilities Act and the Power Commission Act by the Ontario Legislature. R. S. Reynolds, General Manager, Chatham Hydro-Electric Commission, spoke briefly on the importance of the Municipal Hydro-Electric Pension and Insurance Plan. A. W. M. by, Assistant General Manager—Administration, assured his audience that the Commission was fully aware of the increasing power requirements of Northwestern Ontario and was making plans to provide the necessary facilities.

During the business sessions, delegates heard a comprehensive address on power resources of Northwestern Ontario by D. I. Nattress, Manager of the Commission's Northwestern Region.

"A study has indicated a long-term average load growth in the Northwestern Division of about 7.4 percent per year between 1924 and 1952," he stated.



As at December this year the Commission's dependable peak capacity in this Division would be approximately 262,000 kilowatts. To meet the anticipated loads between 1953 and 1957 the Commission planned to raise its dependable peak capacity to 323,400 kw.

### Studying Power Developments

To meet demands and provide a margin of reserve beyond 1954, other developments will be necessary. Studies are being made, therefore, to determine what developments will best provide for the anticipated load growth.

It is evident that power demands are growing at a rapid rate and that hydraulic power resources are not unlimited, the speaker continued. "Ultimately we must envisage the possibility of augmenting the hydraulic resources with thermal plants. In this regard we are favorably situated on the Great Lakes, St. Lawrence Seaway, and perhaps, in the future, on the gas pipe-line from the West."

Wills MacLachlan, Engineer, Electrical Employers' Association, was also a featured speaker at this session, dealing with the importance of instituting safety programs for Hydro and other public utility employees.

In this connection, he urged that each utility commission make certain that good personnel equipment was supplied to employees, and that employees had good working conditions. High standards of construction were also important in accident prevention, he said. In addition, all employees should be given instruction respecting safety rules, and be in a position to carry out resuscitation work immediately under the competent guidance of a medical doctor in case of accident.

### Approve Resolutions

Major items on the convention agenda were consideration and approval of two resolutions.

The first resolution to be forwarded to member district associations for consideration, requested amendment of the parent

of grateful recognition of his contribution to the progress of the municipal Hydro systems of Ontario by his devoted service as President of the Association of Municipal Electric Utilities in 1943, R. B. Chandler, r., former General Manager of Port Arthur Public Utilities Commission was presented with an honorary membership in the A.M.E.U. by President Norman A. Grandfield.

O.M.E.A. constitution to permit annual election of a first vice-president of the Association. In the event of the death of the president, the first vice-president would, automatically, become acting president.

Delegates also approved a resolution forwarded from District 5 O.M.E.A. requesting organization of a co-operative fire insurance plan for member municipalities of the O.M.E.A.

### Election of Officers

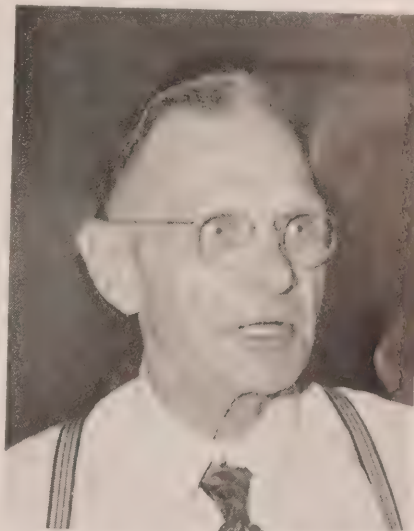
This discussion was followed by the election of officers which resulted as follows: Robert H. Saunders, Honorary President; Lt. Col. A. A. Kennedy, Honorary Vice-President; J. D. Phillips, Schreiber, President; E. R. Freeman, Port Arthur, First Vice-President; C. H. Moors, Fort William, Second Vice-President; Directors—Edward Sherwood, Dryden, A. E. Olson, Kenora, and Mayor J. T. Livingston, Fort Frances, and A. W. H. Taber, Fort William, Secretary-Treasurer.

The invitation of Mayor Gordon Carson to hold next year's convention at Fort William was gratefully accepted.

Climaxing the gathering was an interesting bus trip to Ontario Hydro's picturesque Ear Falls development on the English River, where members of the staff and their wives provided an excellent luncheon in the colony recreation hall.



R. S. REYNOLDS, Manager, Chatham P.U.C., spoke on the Municipal Hydro-Electric Pension and Insurance Plan.



MAYOR C. J. WRIGHT, Dryden, extended civic welcome to District 3 delegates.





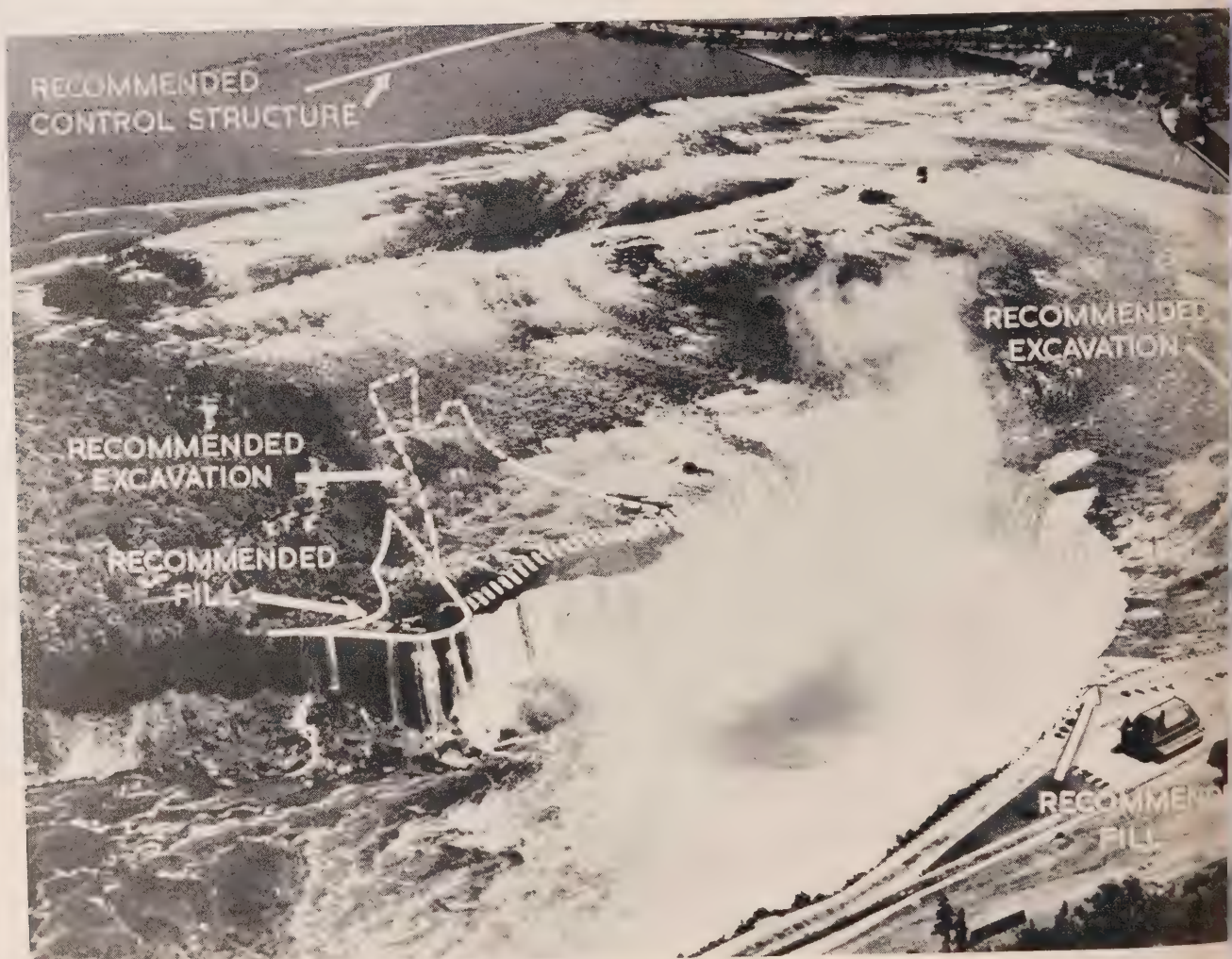
# EARLY START

## ***Ontario Hydro Will Commence Construction of Niagara Remedial Works Control Structure Within Next Few Weeks***

ONTARIO HYDRO plans an early start on its share of the joint Canadian-United States remedial works proposed for the Niagara River above Niagara Falls.

Official approval of the remedial scheme, initiated to preserve and enhance the scenic beauty of the Niagara Falls and River, and also to contribute to the most effective use of water for power production, was announced simultaneously by Canada and United States on July 22 this year (*Ontario Hydro News*, July-August, 1953).

Ontario Hydro will have jurisdiction over the actual work to be undertaken on the Canadian side of the river, including the control structure at the Chippawa-Grass Island Pool which will control the river level in the Pool area above the Falls. By controlling the level





of the Chippawa-Grass Island Pool, present conditions in the Pool and the river upstream will remain unchanged, the American Falls spectacle will remain unimpaired, and the most effective use of water will be assured.

Construction of the 1,550-foot long control structure, on the Canadian side of the river about 300 feet downstream from the existing submerged weir, will be started by the Commission within the next few weeks. It will contain 13 sluices or openings, each equipped with a control gate.

**Unbroken Crestline**

Other features of the remedial scheme include excavation on the Canadian flank, and another on the Goat Island flank of the Horseshoe Falls, which will produce an unbroken crestline, and result

in the distribution of flow over the Falls stipulated by the 1950 Niagara Treaty. In addition, the ends of the Horseshoe Falls will be "filled in" with earth and rock to eliminate the incidental flow over these sections of the crest, thus creating an unbroken curtain of flow over the crestline at all times. Excavations and fillings, scheduled for 1954 and 1955, are designed also to check the erosion taking place in the deep notch of the Horseshoe Falls.

The recommended fills, landscaped to blend with the gorge formation, are expected to be a popular innovation with Falls visitors, affording an even better view of the Horseshoe cataract and the upstream section of the Niagara River.

**Power Development**

Evolved by engineers of the Canadian

Government, Ontario Hydro, and the U.S. Corps of Engineers, working in close liaison (with the aid of large scale models of the Niagara River area built by the Commission and the U.S. Corps of Engineers), the remedial scheme is being implemented in conformity with the terms of the 1950 Niagara Treaty. This Treaty enabled the redevelopment of the power resources on both the Canadian and American sides of the river. With the additional water available for use under the terms of the Treaty, Ontario Hydro was able to proceed immediately with the construction of its Sir Adam Beck-Niagara Generating Station No. 2. This development, scheduled to start operation in 1954, will have an initial-phase, installed capacity of 1,428,000 horsepower (ultimate installed capacity of 1,828,000 horsepower).

AIRATIC retouched photograph of the Horseshoe Falls on the opposite page shows the limits of the recommended crest fills, excavation areas and the Chippawa-Grass Island Pool Control Structure

ONTARIO HYDRO'S Assistant General Manager-Engineering, Dr. A. G. L. McNaughton, second from left, with Niagara Remedial Works Commission International Joint Commission Federal Government officials and Ontario Hydro's Director of Engineering, J. R. Montague; and J. R. Pelletier, Assistant Secretary of the Federal Cabinet.





# GREAT CHALLENGE

## ***Ontario's Prime Minister Stresses Importance of Interprovincial and International Co-operation in Solving Canadian Problems***

ONTARIO'S phenomenal industrial and agricultural developments present "a great challenge to utility people," Ontario Prime Minister Leslie M. Frost told delegates at the recent annual convention of the Eastern Ontario Municipal Electrical Association held at Gil-Mar Lodge, near Lindsay.

Premier Frost, accompanied by Hon. E. C. Manning, Premier of Alberta, was guest speaker at the convention's main luncheon.

With this growth in the productive facilities of Ontario and the natural increase in the demands for power, there has been a parallel increase in population, the speaker said.

"For example, during each 30-day period there is an increase in Ontario's population equal to a town more than half as large again as Lindsay, approxi-

mately 15,000 people for a total yearly increase of some 180,000.

"Furthermore, during the next 365 days we must find seats and desks and school buildings to handle 50,000 more children, and again for the same number during the subsequent 365 days."

The speaker stressed the need for continuing interprovincial co-operation as the best method of handling the problems confronting a growing country like Canada.

### **International Power Link**

"Co-operation between the provinces of Quebec and Ontario has resulted in the most efficient method of developing the power resources of the Ottawa River. In an international way, the same spirit of co-operation between this province and the United States, as recently exemplified by the power tie-in between Ontario

Hydro and the Detroit Edison Company, will benefit all of us."

Continuing, the Ontario Premier said that one province cannot be rich and the others remain poor.

"We welcome the opportunity of using gas, oil and coal from Alberta, and we want to use coal from Nova Scotia. At the present time, a substantial portion of Ontario's oil requirements are supplied by Alberta, and we hope, in the future, that all of our requirements of this nature will come from Alberta."

In conclusion, Mr. Frost told his audience, "that nothing has changed the picture of Canada more than the discovery of oil in the West." The speaker was introduced by a long-time friend, J. G. Baldwin, Lindsay, and Dr. R. A. Patterson, Kemptville, extended the vote of thanks.

**GUEST SPEAKER, Ontario Prime Minister Leslie M. Frost, stressed the importance of interprovincial and international co-operation in helping to solve problems confronting a rapidly-growing country like Canada. Among the headtable guests shown are, l. to r. Premier E. C. Manning of Alberta; Premier Frost; J. G. Baldwin, Lindsay; D. P. Cliff, Dundas; Dr. R. A. Patterson, Kemptville, and Mayor Charles Lamb, Lindsay.**







PERFECT WEATHER and an inviting country road prompted this quartet to take an after-luncheon stroll. From l. to r. H. O. Hawke, Galt; D. P. Cliff, Dundas; Wills Maclachlan, Electrical Employers' Association, and Bertram Merson, Chairman, Toronto Hydro-Electric System.

NEW MEMBERS of the 1953-54 E.O.M.E.A. executive, seated, left to right, are: First Vice-President, J. G. Baldwin, Lindsay; President, E. V. Dyke, Smiths Falls; Past President, M. J. Elliott, Bowmanville; Director, Col. James Harris, Kingston, and Second Vice-President, Dr. R. A. Patterson, Kemptonville. Standing, left to right: Directors: P. C. McGuire, Belleville; George Findlay, Carleton Place; L. L. Coulter, Ottawa; Past Secretary-Treasurer, G. E. Chase, Bowmanville, and Director, Stanley Graham, Newcastle. Secretary-Treasurer, N. J. Douglas, Smiths Falls, was unavoidably absent when this photo was taken.

Other speakers at the convention included, Col. A. A. Kennedy, Owen Sound, and D. P. Cliff, Dundas, President, and Secretary-Treasurer, respectively of the O.M.E.A.; Bertram Merson, Chairman, Toronto Hydro; Wills Maclachlan, Electrical Employers' Association, and Ontario Hydro representatives, W. Ross Strike, Second Vice-Chairman, and Dr. Otto Holden, Assistant General Manager-Engineering.

#### Elect Officers

Highlight of the convention was the election of E. V. Dyke, Smiths Falls, as district President. Other officers elected to serve with Mr. Dyke are: M. J. Elliott, Bowmanville, Past President; J. G. Baldwin, Lindsay, First Vice-President; Dr. R. A. Patterson, Kemptonville, Second Vice-President; N. J. Douglas, Smiths Falls, Secretary-Treasurer; Directors: P. C. McGuire, Belleville; G. E. Findlay, Carleton Place; Col. Jas. Harris, Kingston; Stanley Graham, Newcastle; and L. L. Coulter, Ottawa.

Following an address of welcome by Mayor Charles Lamb, of Lindsay, the morning session began with an address by D. P. Cliff who spoke on the standard constitution which is being presented to all districts for their approval and adoption.

Referring to the meeting of OMEA Presidents and Secretaries held in June,

(Continued on page 14)

REPLACE is always an invitation for informal discussions. Here two brothers, H. E. Baldwin, Oshawa, and J. G. Baldwin, Lindsay, discuss the convention program with President, E. V. Dyke, Smiths Falls, right.







**BUSINESS** at the registration table went along smoothly under the guidance of Donald Lamb, right and J. G. Ritchie, both of Belleville. Proffering their fees, from left to right are: Ronald Palmer, Millbrook; A. C. Chapman, Toronto; C. T. Hunt, Tweed; C. G. Cassidy, Tweed; Sidney Kitney, Toronto, and Herbert Cox, Tweed.



**PREMIER FROST**, introduces his friend Premier E. C. Manning, Alberta, left, to Mayor Charles Lamb, of Lindsay, who greeted the distinguished guests as they arrived by plane and boat for this year's convention.

## GREAT CHALLENGE

(Continued from page 13)

this year, Mr. Cliff said that it was the first time in the 44-year history of the Association that all eight district Presidents and Secretaries had met to discuss mutual problems and to plan a uniform agenda for district meetings.

"Proper planning of the district agendas, well in advance, will bring uniformity to meetings so that the more important subjects to be brought under review will have province-wide attention and action before the annual meeting," Mr. Cliff explained.

### Standard Constitution

It was at this June meeting, Mr. Cliff said, that the President of the OMEA was requested to set up a standard constitution, the reasons being:

1. A number of the districts had no constitution, or copies were not available.
2. All of the constitutions varied greatly and, therefore, there was a need for uniformity.

"In February this year we celebrated the 50th anniversary of the meeting that led to the creation of our great, publicly-owned Hydro enterprise," said Mr. Cliff. "Today, 279 municipalities are members of the OMEA, 10 new members having been added this year. We are looking forward to the day when every municipality in Ontario, being served with Hydro power at cost, becomes a member of the OMEA."

Col. A. A. Kennedy emphasized the responsibility of respective commissioners, pointing out that actual ownership of Hydro is vested in the cost municipalities. Therefore, they should take a

definite interest and stake in Hydro affairs, he said.

"We must do everything in our power to strengthen our organization so that each municipality will be in step with the other, aiming at the same target, and hence, able to take a full share as partners in the tremendous tasks that lie ahead."

W. Ross Strike, prefaced his morning address with a tribute to the unselfish service of Col. A. A. Kennedy, D. P. Cliff, and the committee representatives of the Municipal Hydro-Electric Pension and Insurance Plan.

Regarding the merits of this plan, Mr. Strike said: "An adequate pension is necessary if we are going to give our municipal employees the same treatment as those employed in comparable industries. Our employees are actually doing the very essential day-by-day work that has made Hydro so successful, and we should pay them the tribute of helping them in planning for their future security. This matter of pensions should get top priority from our local commissions so that their employees will be adequately provided for upon retirement."

Mr. Strike then outlined to the delegates the recent legislative amendments to the Power Commission Act. He reminded his audience that Ontario Hydro and the local utilities have no powers outside of the Power Commission and Public Utilities Acts. Therefore during this period of increased development and expansion, care must be taken to ensure that any changes made are within the authority of these Acts.

Dr. Otto Holden delivered a very comprehensive address on the St. Lawrence Power project, using color slides to illustrate his talk.

Resolutions passed during the convention were:

1. That proposed changes in the constitution be adopted as far as the election of officers is concerned, but that other changes recommended in line with a standard constitution be studied further by the executive for a report at the next meeting.

2. That the co-operative fire insurance plan as introduced by H. O. Hawk Galt, be given further study and report tabled at a later date.

Delegates enthusiastically endorsed vote of thanks to Ontario Hydro, well as the Ontario and Canadian Governments for their persistent advocacy of an immediate start on the St. Lawrence Seaway and Power Project.

—by H. B. Wood.



# HYDRO NAMES IN THE NEWS



M. J. McHENRY

**I**MPORTANT changes in the staff of the Commission's Consumer Service Division and Regional organization were announced recently.

M. J. McHenry, Director of Consumer Service, has been named Consultant to the Division. Formerly Assistant Director and Industrial Service Engineer, I. K. Sitzer succeeds Mr. McHenry as Director of this Division.

Appointment of Mr. McHenry as Consultant is in line with the Commission's established policy of maintaining a strong consulting group of senior engineers. Thus, the Commission derives considerable benefit from their knowledge and wide background of experience during a period of unprecedented expansion in all phases of its operations.

Another change of interest to municipal readers is the appointment of Douglas J. Gordon as Municipal Service Engineer. Formerly assistant engineer in this department of the Consumer Service Division, Mr. Gordon succeeds A. G. Code who has retired after 26 years service.

Retirement of R. M. McKenzie as Manager of Hydro's West Central Region with headquarters at Hamilton, has resulted in two major Regional appointments. (See Page 21.)

Omer S. Russell, formerly Operations Engineer for the Western Region (London), succeeds Mr. McKenzie as Manager of the West Central Region, while J. Ward Stiles, formerly Maintenance Superintendent, Eastern Region (Ottawa), becomes Operations Engineer in place of Mr. Russell.



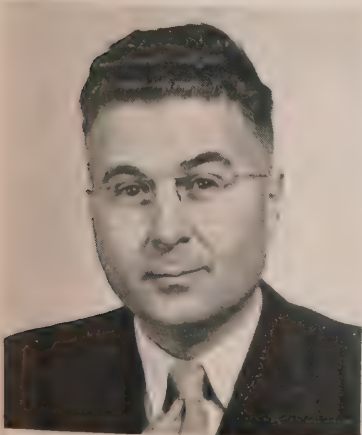
I. K. SITZER



A. G. CODE



D. J. GORDON



O. S. RUSSELL



R. M. MCKENZIE



J. W. STILES



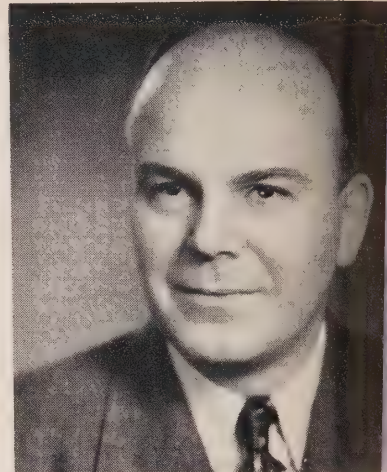
# ANNOUNCE SENIOR HYDR



**E. H. BANKS**  
Comptroller



**G. D. FLOYD**  
Deputy Assistant General Manager—Engineering



**J. M. HAMBLEY**  
Deputy Assistant General Manager—Adm

**T**HREE new senior management appointments have recently been announced by Dr. R. L. Hearn, General Manager and Chief Engineer. Designed to provide greater distribution of the added responsibilities created by Ontario Hydro's continuing expansion program, the new moves will permit a more effective flow of management functions.

G. D. Floyd, formerly Director of Planning, has been appointed Deputy Assistant General Manager—Engineering, reporting to Dr. Otto Holden.

J. M. Hambley, formerly Director of Operations, has been appointed Deputy Assistant General Manager—Administration, reporting to A. W. Manby. Mr. Hambley will assume such duties as may be delegated to him by the Assistant General Manager—Administration.

E. H. Banks, Comptroller, while retaining the title of Comptroller, acquires the status of Deputy Assistant General Manager, reporting to Mr. Manby, and assumes responsibility for the Supply Division which was transferred from the Engineering Branch. In addition, the Comptroller function now embraces three Divisions, with H. W.

Beck as Director of Supply, F. R. Brebner as Treasurer, and G. F. Davis as Director of Accounting.

G. A. Honsberger continues as Assistant Comptroller with responsibility for the functions of the following groups: Insurance Officer, Pension Officer, Internal Auditor and Municipal Accounting Supervisor.

In making the announcement, Dr. Hearn pointed out that since procurement, stores operations and surplus disposal activities are closely allied to the service and control functions of the Comptroller, the Supply Division has been made part of the Comptroller's new organization. As in the past, the purchase of major equipment and materials required by the Engineering Branch will be subject to the recommendation of that Branch.

M. H. Mackenzie becomes Director of Planning, succeeding Mr. Floyd, and C. B. Sharpe becomes Director of Operations, succeeding Mr. Hambley.



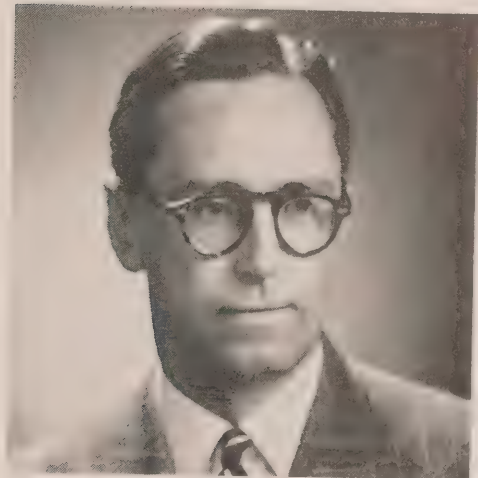
# APPOINTMENTS



H. W. BECK  
Director of Supply



C. B. SHARPE  
Director of Operations



G. F. DAVIS  
Director of Accounting



M. H. MACKENZIE  
Director of Planning

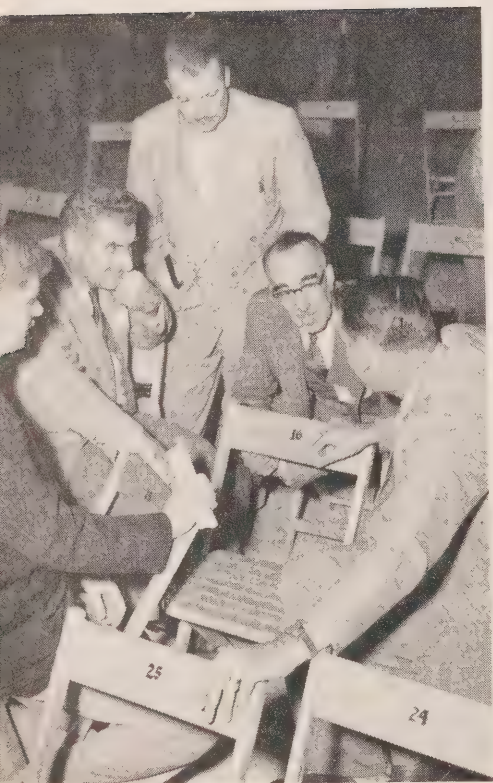


F. R. BREBNER  
Treasurer



# ANOTHER STEP FORWARD

A. W. Manby Lauds Interconnection of Ontario Hydro  
and Detroit-Edison Systems During Power Situation  
Review Presented at Georgian Bay M.E.A. Meeting



NO DOUBT about the subject under discussion when these Hydro men get together. From left to right: W. C. Porter, Barrie; Carl Carruthers, Hydro's R.O.A. Manager, Stayner; R. K. Pile, and C. E. Crease, Georgian Bay Region, and Douglas Gordon, Municipal Service Engineer, Ontario Hydro.

**R**ECENT construction of tie-lines between Ontario Hydro and Detroit Edison Company at Windsor and Sarnia, to permit interchange of power between the two systems, was termed "one of the most forward-looking steps ever taken by the Commission," by A. W. Manby, Assistant General Manager—Administration, speaking at the recent annual convention of the Georgian Bay Municipal Electric Association at Collingwood.

During the two-day meeting some 175 delegates heard addresses by Mr. Manby, W. Ross Strike, Second Vice-Chairman; A. W. Murdock, Hydro's Rate Study Engineer; Bertram Merson, Chairman, Toronto Hydro-Electric System, and H. O. Hawke, Galt.

Mr. Manby, guest speaker at one of the sessions of the two-day gathering, in a comprehensive review of the power situation, said that "the phenomenal increase in power demands which has occurred in recent years is still in evidence."

In recent months the power demands in Southern Ontario have shown increases of 6 to 7 percent over those experienced last year, compared with the "long-term average rate of growth of 5.7 percent."

## Augmented Resources

To meet the increased peak this year, Commission resources have been augmented by approximately 220,000 kilo-

watts, chiefly in the form of steam and the installation of the eighth and final unit at the Otto Holden Generating Station on the Ottawa River.

"Thus, if all normal dependable resources are available, and demands are approximately as estimated, we should be able to meet the system peak demands with only minor and infrequent cuts of our interruptible contracts."

Turning to the energy picture, which he described as "not so optimistic," Mr. Manby said the natural run-off on the Ottawa River was the lowest on record. Therefore, unless better than average rainfall occurs before the winter freeze up, the output of Hydro's Ottawa River plants will be reduced below normal by approximately 20 to 22 million kilowatt hours per week. At the same time Quebec suppliers have indicated that their deliveries to the Commission will have to be reduced by a total of some 12 million kilowatthours per week, representing a total reduction of upwards of 35 million kilowatthours per week.

"When you consider that in February 1948, we had to resort to cut-offs in the face of a reduction of 8 million kilowatthours per week, you will realize what a serious situation we would face at the present time if the Commission had not taken steps to safeguard the interests of the power users of Ontario."

In this connection, the speaker pointed out that "this energy deficiency can, at





**MEMBERS of 1953-54 executive of the Georgian Bay M.E.A., left to right: Sec-Treas., Robert Butter, Owen Sound; Director, Norman Kidnew, Walkerton; 1st Vice-President, Lt-Col. A. A. Kennedy, Owen Sound; Hon. President, W. E. Theaker, Paisley; President, H. G. Robertson, Barrie; 2nd Vice-President, C. J. Halliday, Chesley; Directors —L. C. Vincent, Gravenhurst; W. J. Cross, Hanover, and J. A. Ellis, Collingwood.**

being made up by operating our steam plants at a much higher load factor than previously anticipated." In addition, the commission has brought its auxiliary steam plants into service much earlier in the year than contemplated.

But, the "real life-saver" has been the recent interconnection between the Ontario Hydro and Detroit Edison Company systems.

It is anticipated, Mr. Manby said, that it will be possible to secure "upwards of an average of 400,000 hp. through this interconnection," which, coupled with the increased output from the fuel-electric stations, will be sufficient to meet the very large reduction in energy output at the Ottawa River plants.

Barring unforeseen contingencies, such as a loss of major generating equipment, it will be able to take care of system energy requirements throughout the remainder of the year."

#### Fuel-Electric Stations

Discussing the role of fuel-electric stations, the speaker told delegates that total thermal generation in December, 1952 was about 62 million kilowatthours, compared with an estimated figure of 370 million kilowatthours in December of the year. Production of this amount of energy represents roughly 230,000 tons of coal, at a cost of approximately \$300,000. If water were available, hydro plants could produce an equivalent

amount of energy at a cost of about \$70,000, representing water rentals.

"This illustrates how power costs are increased when it is necessary to resort to steam generation."

Dealing with the question of new sources of supply, Mr. Manby stated that resources would be augmented by the fourth unit (60,000 kilowatts) of the J. Clark Keith Generating Station at Windsor at an early date, and by the return to service of the fourth unit at the Richard L. Hearn station in Toronto which had been taken down temporarily to effect repairs.

"There is an additional 12,000 kw. available at the R. L. Hearn plant when the remaining 25-cycle unit is converted for 60-cycle operation in the future."

#### Good Progress at Niagara

Good progress is being made on the Sir Adam Beck No. 2 development at Niagara, the first units of which are to be placed in service early next year.

This project, in its initial phase, will have an installed capacity of 1,428,000 horsepower. A storage reservoir will enable Ontario Hydro to convert night-time energy into day-time energy. At the same time the pumping plant associated with the storage reservoir, can be operated in reverse to produce some 228,000 horsepower. Provision is also being made for the installation of four additional units at some later date.

However, in spite of this large development, it is anticipated, at present, that the output of this plant will be fully utilized by 1957.

"Unless we get the go-ahead on the St. Lawrence Power development in the near future, the only alternative will be the installation of additional thermal generation, with a corresponding increase in the cost of power," he said.

#### Legislative Amendments

Mr. Strike, speaking on changes in legislation affecting the utilities, reminded his audience that Ontario Hydro and the municipal utilities were both obliged to operate within the Power Commission Act and Public Utilities Act respectively.

"Ontario Hydro and the local commissions have no powers outside of these acts. Therefore, during periods of increased development and expansion we must ensure that any changes made are fully within the jurisdiction of these regulations."

The speaker pointed out the danger, when amendments to the Acts are made, of curing one specific problem at the expense of creating a "chain of diseases—some of them very difficult to handle."

Amendments referred to by Mr. Strike included:

Neither Ontario Hydro nor local com-

*(Continued on page 20)*





**DEALING** with the topic "The Power of Thinking Big," Rev. John Hunter, Collingwood, proved a vigorous and entertaining speaker during his main banquet address.

## ANOTHER STEP FORWARD

(Continued from page 19)

missions pay municipal taxes, but they pay an amount in lieu of taxes that, in dollars, is equivalent to the regular taxes. This amount is arrived at by assessing the value of land and buildings only, with the same yardstick as other assessments in the municipality. Then the amount is arrived at by applying the current municipal mill rate. The business tax on the same assessment is also included in the amount.

The Ontario Hydro properties are assessed by the Department of Municipal Affairs of the province, while the local commission properties are assessed by the local assessors.

The Province of Ontario has been given authority to raise money on behalf of Ontario Hydro by the sale of notes, bonds, debentures, or other securities issued by the H.E.P.C. Referring to the above amendment, Mr. Strike said: "This has enabled the Commission's bonds to be offered in the American market."

Another amendment permits the local municipalities in the 25-cycle area to carry on customer 60-cycle standardization

### Discusses Rates

A. W. Murdock, Hydro's Rate Study Engineer, stimulated many questions with his discussion on the revised clauses in the Standard Interpretation of Rates

booklet. "The purpose of the Standard Interpretation of Rates is to envisage the situations which arise, and outline the procedure to be followed in each case, in order that we may have practical and uniform rate applications throughout the province," he said.

The revisions are based on answers to a questionnaire circulated to some 122 municipalities. The proposed revisions were carefully studied by the A.M.E.U. Rates Committee at a series of meetings, and reviewed by Hydro's Legal Department before final adoption.

Mr. Murdock emphasized that "in case of dispute with a customer, these interpretations must necessarily form the basis of settlement. It is, therefore, very important that they be closely adhered to."

Among the important revisions is that related to skating and curling rinks, bowling greens etc., which have been billed on a minimum of six months. Under the revision, the minimum period is reduced to four months, and these are not necessarily calendar months. For example, a ball park may be lighted from May 15 to September 15 to include the early and late holidays.

Heretofore, the kilowatt-hour use would have been apportioned on the basis of five months and another minimum bill for one month would be rendered. Now, the billing would be for four months. Furthermore, if the period of use is

extended beyond the four months, the account may be pro-rated for the additional period on the basis of the actual number of days down to a minimum of 14 days.

### Pension Plan

Bertram Merson, Chairman Toronto Hydro, speaking on behalf of the Municipal Hydro-Electric Pension and Insurance Plan, referred to the Supplementary Pension plan which had been instituted to compensate the retired person for the drastic drop in the value of the dollar.

"The Supplementary plan does not change the insurance plan, but requires an employee to pay an additional 2½ percent. On the other hand the particular commission will pay approximately the same, subject to the age of their employees."

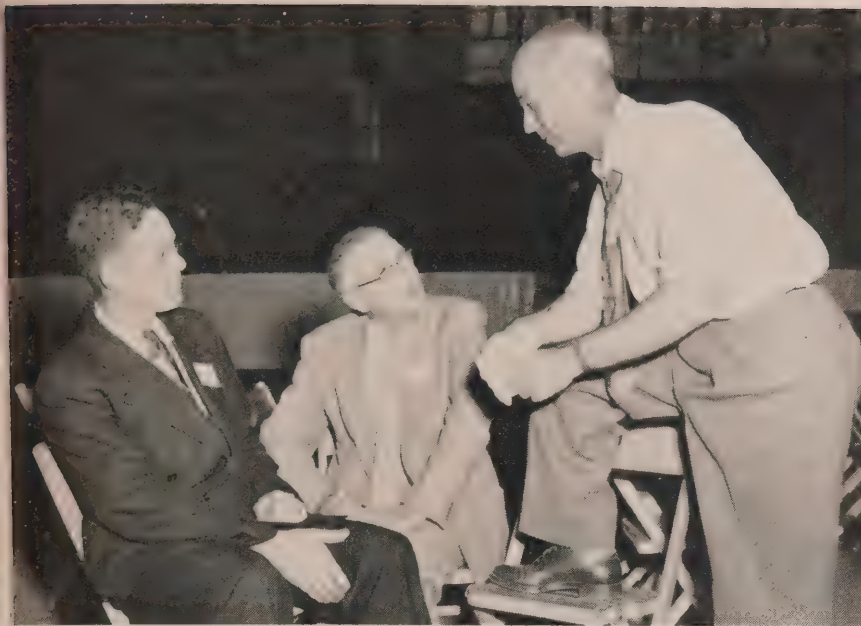
Minimum pension incorporated into the Supplementary Plan varies from \$85 per month up to \$125, said the speaker.

Mr. Merson pointed out that although 144 municipalities and 5,200 employees were in the plan, the smaller commissions were not very well represented. In this regard he told of instances where commissions without the Pension and Insurance plan were having difficulty in obtaining new employees, or in getting employees who are already in the service of a commission within the Pension Plan to transfer, even though it would mean a promotion.



**BERTRAM MERSON**, extreme right, Chairman, Toronto Hydro-Electric System, and enthusiast supporter of the Municipal Hydro-Electric Pension and Insurance Plan explains Supplementary Pension Plan booklet to, left to right, R. H. Hillery, Administrative Assistant—Regions, Ontario Hydro; Lt. Col. A. A. Kennedy, Owen Sound, O.M.E.A. President; W. Ross Strike, Secor Vice-Chairman, and A. W. Manby, Assistant General Manager—Administration, Ontario Hydro.





**WILLIAM LANE**, Superintendent, Collingwood P.U.C. (extreme right) who capably handled all convention arrangements is congratulated by **W. F. Silk**, Barrie, left, and **Leo Cain**, Toronto.

#### Pass Resolution

An address by H. O. Hawke, of Galt, in Co-operative Fire Insurance, resulted in the adoption by the delegates of the following motion recently passed at District No. 5, O.M.E.A.:

WHEREAS, a 20-year survey of the fire insurance policies held by municipalities associated with The Hydro-Electric Power Commission has revealed the total of the premiums far in excess, or approximately four times the value of the fire losses sustained, and

WHEREAS most municipalities are in the Co-operative Public Liability and Property Damage Policy fostered by the Ontario Municipal Electric Association, which has saved thousands of dollars for Hydro consumers in Ontario through reduction in the individual premiums paid by approximately nine-tenths of the member municipalities, and

WHEREAS it is an estimated fact that tremendous savings could be made if municipalities acting on a co-operative basis entered into a contract with the Head Office of a fire insurance company, THEREFORE, be it resolved that the members of this District of the Ontario Municipal Electric Association endorse in principle, the organization of a co-operative fire insurance plan for member municipalities, and BE it further resolved that

this resolution be forwarded to all other Districts for their consideration and approval and request that the Board of Directors of the O.M.E.A. set up a Committee to institute the purposes of this resolution.

A second resolution passed at the convention was the adoption of a common constitution for members of the O.M.E.A.

Brief papers were presented by: W. M. Salter, Barrie; Alex McLinden, Owen Sound; C. E. Crease, Consumer Service Engineer, Ontario Hydro, Barrie, and Harry Mann, Hanover, Willis MacLachlan, Engineer, Electric Employers Association addressed the delegates on "Promotion of a Safety Campaign."

By a unanimous decision, President H. G. Robertson, Barrie, and the 1952-53 executive were re-elected for another term with the exception of two new Directors. Serving with him are: Hon. President, W. E. Theaker, Paisley; 1st Vice-President, Lt. Col. A. A. Kennedy, Owen Sound; 2nd Vice-President, C. J. Halliday, Chesley; Secretary-Treasurer, Robert Butter, Owen Sound; Directors: Jack Low, Uxbridge; W. J. Cross, Hanover; A. T. Smith, North Bay; L. C. Vincent, Gravenhurst; Auburn Wright, Erin; Norman Kidnew, Walkerton (new), and V. A. Ellis (new), Collingwood.

Auditors are: W. G. Lane, Collingwood, and W. M. Salter, Barrie.

Two former officers, Roy S. King, Midland, retired, and Joseph Bull, Collingwood, were given a sincere vote of thanks by a grateful membership for their work in the past.

Banquet speaker was Rev. John Hunter while entertainment was supplied by Mary-Louise Playter, elocutionist, and the Logan Brothers, an instrumental duo.

Arrangements for the convention, including the task of finding accommodation for the delegates were capably handled by W. G. Lane, Superintendent, Collingwood P.U.C. He was assisted by Miss Muriel Douglass, Miss Isobel Berman and Miss Margaret Bunting.

—by H. B. Wood.

## Retired Regional Head Appointed Burlington Manager

R. M. McKenzie, who retired recently as Manager of Ontario Hydro's West Central Region, Hamilton, (see Page 15) has been appointed Manager of Burlington Hydro-Electric Commission. Since the headquarters of the West Central Region were transferred to Hamilton in 1948, Mr. and Mrs. McKenzie have resided at Burlington.

Well-known in municipal circles, Mr. McKenzie retired as Manager of the West Central Region with 34 years' Ontario Hydro service to his credit. Born at Eganville, Ontario, he graduated in engineering from Queen's University, Kingston, in 1912. During World War I he served with the Canadian Machine Gun Corps from 1916 to 1919, joining the Commission shortly after discharge. He was a district engineer with the Commission's Municipal Department until 1947 when he was appointed to head the West Central Region at Hamilton with the establishment of the Regional organization. Memberships in the Association of Professional Engineers of Ontario; Niagara District Electric Club; the Canadian Legion; Hamilton Chamber of Commerce, as well as an associate membership in the A.M.E.U. are among his outside interests.

He succeeds E. R. Swift, P.Eng., who, for several years has filled the dual role of Manager of Burlington Hydro Commission and town engineer. Mr. Swift was forced to relinquish his position as local commission manager due to the pressure of his municipal duties.



# Hydro Scholarships



**I**N recognition of the outstanding work of engineering graduates of Canadian universities in the fields of power generation and distribution, Ontario Hydro this year awarded nine scholarships valued at \$2,300. Designed also to assist and encourage promising engineering students, eight of the awards, known individually as "The Hydro-Electric Power Commission of Ontario Scholarship in Engineering," were inaugurated in 1952, while an additional award was instituted this year.

Three scholarships of \$300 each are awarded annually at both the University of Toronto and Queen's University, Kingston, based on the final standings for the first, second and third year's work of students taking any engineering course related to the operations of the Commission.

In addition, a \$100 scholarship is being awarded annually to the most worthy cadet at the Royal Military College, Kingston, entering his fourth year of the electrical engineering course. The Commission is also sponsoring a \$100 scholarship at the Ryerson Institute of Technology, Toronto, which is awarded in the second year of a three-year course in the Institute's mechanical and industrial technology course.

For the first time a \$300 scholarship was awarded at the Lakehead Technical Institute, Port Arthur, this year, in support of the training being conducted in the applied science course, on the basis of need and academic standing. This year's Hydro Scholarship winners were:

## University of Toronto

First year—A. F. Walden, Toronto, Chemical Engineering Department; Second year—G. W. Torrance, Burlington, Engineering and Business Department; Third year—J. F. Phenix, Toronto, Electrical Engineering Department.

## Queen's University

First year—R. D. Tillotson, Leamington, Ont., Applied Science; Second year—I. M. Duck, Kamloops, B.C., Applied Science; Third year—G. R. Yungblut, R.R. No. 1, Auburn, Ont., Applied Science.

## Royal Military College

Cadet C. R. Fanjoy, Peterborough.

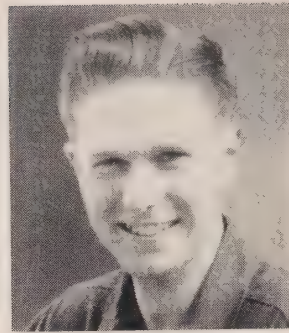
## Ryerson Institute of Technology

D. J. Haxton, Oshawa.

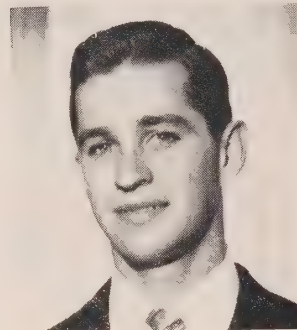
## Lakehead Technical Institute

William Toivonen, Port Arthur.

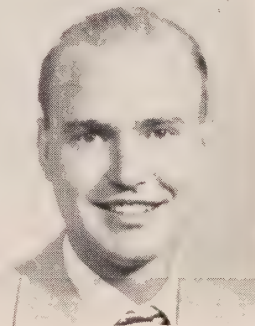
Brief biographies and photos of the 1952 award winners are presented herewith:



**ALAN FRANK WALDEN**, first year University of Toronto Hydro Scholarship winner for 1953, is a graduate of Toronto's well-known Humber College where high scholastic standing is a favorite pastime of many of its students. Born in Toronto, Walden completed his first year in the chemical engineering course this year. A son of Mrs. Frank Walden, 378 Durie St., Toronto, he received his primary education at Runnymede Public School. His hobbies include music and photography, while he counts tennis and swimming as his favorite sports.

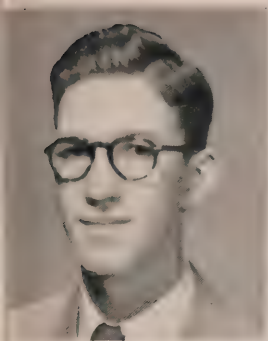


**GEORGE WALTER TORRANCE**, winner of the second year Hydro Scholarship at Varsity, is a son of Mr. and Mrs. Walter C. Torrance, 71 New St., Burlington. Born in Toronto on May 14, 1933, he was educated at East Burlington Public School and Burlington High School where he received the J. W. Ball General Proficiency Award in his final year. Last year he won the John W. Empey Scholarship at the end of his first year in engineering. His hobbies include stamp collecting and music. He is a trumpet player, having played this instrument in the U. of T. Football (Blue and White) Band for the past two years. Swimming and skiing are his favorite sports.



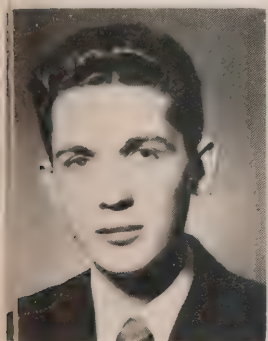
**JOHN F. PHENIX**, now in his final year of the electrical and engineering course at the University of Toronto was born at Ridgetown, Ont. on June 12, 1927. Educated at Essex St. Public School and Bloor Collegiate Institute in Toronto, the 1953 winner of the third year Hydro Scholarship spent five years as a radio technician before entering university. Winner of the first Association of Professional Engineers of Ontario Scholarship in 1952, he has been class representative and a member of the executive of the Electrical Club at the University of Toronto for the past two years. Interested in music, having played the trumpet in various bands and orchestras in the Queen City, he is a son of Mr. and Mrs. William Phenix, 72 Nealon Avenue, Toronto.





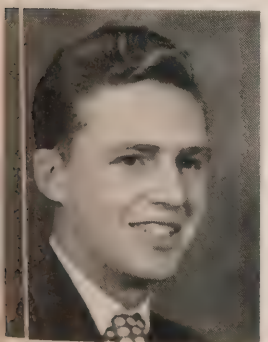
**RONALD D. TILLOTSON**, first-year winner of the Hydro Scholarship at Queen's for 1953 is the son of Mrs. F. Tillotson, 63 John St., Leamington. Educated at Selkirk Public School and Leamington High School, this future engineer won a Lion's Club Scholarship, an I.O.D.E. Scholarship

and a McLean Bursary at Leamington last year. Active in scouting work in Leamington, he was also a member of the Leamington Boys' Band and a member of the high school junior basketball team. During the past year he has been employed in the engineering division of the Steep Rock Iron Mines Limited at the site of their novel iron ore mining operations near Atikokan in Northwestern Ontario.



**IAN MORLEY DUCK**, only Westerner to win a Hydro Scholarship this year, won the second year engineering award at Queen's for 1953. The son of Mrs. and Mrs. A. J. Duck, R.R. No. 1, Kamloops, B.C., he was born at Kamloops. A graduate of Kamloops High School, he has an impressive

scholastic record having four other scholarships to his credit: B.C. Provincial Police Memorial Scholarship (1950); Queen's University Provincial Scholarship (1951); University Scholarship (1952), and the C.O.T.C. Scholarship (joint award) (1953). During the past summer, this promising young student was completing his officer cadet training with the R.C.E. at the Royal Canadian School of Military Engineering at Chilliwack, B.C. He is planning to study engineering physics.



**GLEN ROSS YUNGBLUT**, son of Mr. and Mrs. Harry Yungblut, R.R. No. 1, Auburn, Ont., and third year winner of the Hydro Scholarship at Queen's University for 1953, has already demonstrated his scholastic proficiency by winning a McLean Bursary. Born at Auburn on January 23, 1932,

he was educated at S.S. No. 5, Hullet Township and Goderich Collegiate Institute. A student member of the American Society of Mechanical Engineers, he numbers reading and model working among his favorite hobbies and baseball as his sport. During the past summer he was employed by a road machinery company while for two summers he worked in Ontario's steel mills.



**CADET GEORGE ROBERT FANJOY**, 1953 winner of the Hydro Scholarship presented at Royal Military College, Kingston, is a native of Peterborough, being a son of Mr. and Mrs. W. T. Fanjoy, 566 Sherbrooke St., in the Quaker City. Cadet Fanjoy received his primary and secondary education

at Queen Mary Public School and Peterborough Collegiate and Vocational School. A student member of the Engineering Institute of Canada, he is regarded as an expert marksman, having been presented with the Hon. Sir. F. W. Borden Shield for revolver shooting at R.M.C. last year. He also carried off the mathematics prize during his first and second years at the College. This summer he had the distinction of being one of the 74 Officer Cadets chosen to take their summer training with the 27th Canadian Infantry Brigade in Germany.



**DOUGLAS J. HAXTON**, who won the 1953 Hydro Scholarship at Ryerson Institute of Technology, Toronto, is a son of Mr. and Mrs. James Haxton, 298 Division St., Oshawa. Interested in photography as a hobby, Douglas was educated at Mary Street Public School and Oshawa Collegiate and Vocational Institute. Scholastic achievement is nothing

new to him. During his final year at Oshawa Collegiate, he won the first Carter Scholarship presented to Ontario County students for the highest Grade XIII standing. In addition to winning the Carter Scholarship that year, he was awarded the Lewis Stevenson Medal for Grade XIII Science at O.C.V.I.



**WILLIAM J. TOIVONEN**, as announced in the June, 1953 issue of *Ontario Hydro News* was the winner of the Hydro Scholarship presented at the Lakehead Technical Institute, Port Arthur, this year. Born in Port Arthur, he is a son of Mr. and Mrs. Eino Toivonen, 587 Red River Road,

Port Arthur. Educated also at Queen Elizabeth and Prospect Avenue Public Schools and Port Arthur Collegiate Institute, this budding young engineer has already distinguished himself by winning the B'nai B'rith and Princess Beatrice Chapter I.O.D.E. Scholarships in 1951. Last year he was awarded a Dominion-Provincial Student Aid Bursary. He plans to use the Hydro Scholarship to good advantage this year, having enrolled in the second year mechanical engineering course at Queen's University.





# The First Fifty Years

GREAT HALL in the University of Toronto's Hart House formed the background for the anniversary meeting, on October 8, 1953 of the Toronto Section of the American Institute of Electrical Engineers.







**HEAD TABLE GUESTS** at 50th anniversary meeting, Toronto Section, A.E.E., from left to right: C. E. McWilliam, Past Chairman, C.G.E.; J. M. Sommerville, Canadian Porcelain Ltd.; Val Boyd, Toronto Hydro; E. M. Ashworth, former General Manager and Chief Engineer, Toronto Hydro, retired; Perry Borden, Bristol Meter Company; W. R. Harmer, Ontario Hydro; T. C. D. Churchill, Bell Telephone Company of Canada;

George Leacock, President, Moloney Electric Co.; G. D. Floyd, Ontario Hydro, Deputy Assistant General Manager—Engineering; M. B. Hastings, President, Powerlite Devices Ltd.; John De la Rosa, Toronto Transportation Company; John Hall, Chairman, Toronto Branch, Engineering Institute of Canada; J. C. Barnes, Chairman, Toronto Section, and Herbert C. Powell, Statistician, Toronto Hydro.

**M**ARKING a half-century of progress and achievement in the field of electricity, members recently celebrated the anniversary of the formation of the Toronto Section, American Institute of Electrical Engineers.

During a dinner held at Hart House, University of Toronto, the anniversary observance was highlighted by the interesting and humorous reminiscences of E. M. Ashworth, retired General Manager and Chief Engineer of the Toronto Hydro-Electric System; Perry Borden, Bristol Meter Company, Waterbury, Conn., U.S.A., and George Leacock, Moloney Electric Co., Toronto.

For the occasion, Section Historian H. C. Powell, Toronto Hydro, prepared a special booklet which traced the history of the organization from its inception. An organization meeting in May, 1903, J. L. Kammerer was elected Chairman; R. L. MacKeen, Secretary, with T. R. Rebrugh, W. C. Hawkins, and James Knock as executive members. Formation of the Section was authorized in November that year, and the first regular meeting was held on October 9, 1903. Since that time several Ontario Hydro representatives have made a striking

contribution to the growth of the Section, which today ranks as the largest in Canada. The office of Section Chairman has been filled by Dr. F. A. Gaby (1912-13); A. H. Hull (1918-19); Dr. W. P. Dobson (1921-22); H. C. Don Carlos (1924-25); E. M. Wood (1928-29); D. A. Mackenzie (1930-31); G. D. Floyd (1933-34); M. J. McHenry (1935-36); R. E. Jones (1937-38); A. W. Murdock (1944-45), and A. H. Frampton (1945-46). This year, as the Section marks this important milestone, W. Roy Harmer, Consumer Service Engineer, Frequency Standardization Division, is wielding the Chairman's gavel. In addition, on numerous occasions the position of Section Secretary has been capably handled by an Ontario Hydro representative, while Toronto Hydro personnel also have been identified actively with the organization.

#### Illustrate Progress

The anniversary booklet contained numerous interesting references to the growth of the Commission and its achievements in engineering design and workmanship. Photos of the interior of Ontario Hydro's Decew Falls Generating Station (com-

pleted in 1947), and Richard L. Hearn Generating Station in Toronto (completed in 1953), illustrate the striking progress of the past 50 years in the design of generating units for hydraulic and fuel-electric stations.

Notable also is the reference to the Commission's frequency standardization program which is described as a "huge project." On the subject of power cycles, the booklet points out that "in 1903 in Canada, eight frequencies were in use: 133, 125, 66-2/3, 62 1/2, 60, 50, 40, and 25."

Explaining the reason for the adoption of 25-cycle power for plants along the Niagara River, the historical brochure states that the first plant built on the American side of the river in 1895 was designed for 25-cycle operation, as a compromise between the 16-2/3 cycles and 40 cycles suggested by two opposing groups. The same frequency was adopted for the three Canadian plants at Niagara Falls, and later for the Queenston Chippawa plant (now known as the Sir Adam Beck-Niagara Generating Station No. 1), as "interchange of power between all plants was the objective."



# PREVIEWS OF PROGRESS

**Animated models, unique displays, and effective colors and lighting join forces in telling the dramatic "Hydro story" throughout the province**

**I**T'S more than 30 years now since Sir Adam Beck, first Chairman of Ontario Hydro, took his original travelling "circus" into the rural areas of the province to demonstrate the advantages of electricity on the farm.

In those days the Hydro knight had to "sell" the idea of using electricity!

Today it isn't necessary to persuade Ontario's urban or rural dwellers to use electricity in their homes, offices, farms or factories. Hydro power is "there" at the flip of a switch, and everyone uses it, in most instances, without giving a second thought to the miracle of its ready availability.

This fact has only served to demonstrate the importance and necessity of

informing Ontario citizens about the numerous and complex activities of their great, publicly-owned utility in meeting the unprecedented power demands of this booming province.

Hydro uses various media to keep its customers abreast of its widespread operations on their behalf — addresses and radio reports by Chairman Robert H. Saunders; news and information releases, as well as special articles; special published reports and publications, as well as advertising, films, and conducted visits to its construction projects.

It is also worthy of note that the Commission still employs Sir Adam Beck's method of "reaching" the public. Today streamlined versions of the brilliantly-conceived travelling "circus" are still

going "on the road" with their significant messages.

Through the effective use of color and light, animated models, and unusual displays, the Commission this year offered another sweeping preview of its construction progress, depicted the advantages of modern electrical living, and portrayed the significant steps being taken to meet the challenge of the future.

## **St. Lawrence Model**

Stressing the importance of the St. Lawrence River to Ontario's power future, and Canada's place in world trade, was a large scale model of the river, showing, in addition to the navigation phase, how a total of 2,200,000 horse-





power (Ontario's share to be 1,100,000 h.p.) would be harnessed in the turbulent International Rapids Section.

Ingenious wall maps were used to complement the graphic story embodied in the model, detailing the various aspects of the St. Lawrence project, and the effect on the topography of Ontario and New York State when completed.

The fascinating model of Canada's Niagara (Horseshoe) Falls — long a symbol of Hydro power — drew enthusiastic praise with its actual cascade of water and the simulated spectacle of the nightly illumination.

Ontario Hydro's biggest power project, the Sir Adam Beck-Niagara Generating Station No. 2 development, scheduled to deliver its first power next year, was depicted in another large scale model. Large photographs assisted in explaining the magnitude of the great power scheme which will have an initial-phase installed capacity of 1,428,000 horsepower.

Hydro plays a stellar role in the kitchen, explaining, no doubt, the predominant feminine interest in the Commission's model kitchen. Its gleaming electrical equipment, and other modern conveniences, contrasted with the adjacent, old-style pre-Hydro kitchen, indicated the countless ways in which Hydro has been the loyal, and, in fact, indispensable servant of "the lady of the house."

Illustrating the huge task of changing over more than 5,000,000 pieces of frequency-sensitive equipment of 904,700 customers in Southern Ontario's "25-cent island," was this year's animated frequency-standardization display. This exhibit featured tiny trucks, moving on a hidden track through the highly-organized sequence of operations on a typical "cutover" day, i.e. carrying equipment from warehouse to sub-depot, and thence to the customer.

RECORDS during a tour of the Hydro Building the large scale model of the Sir Adam Beck-Niagara Generating Station No. 2 project. E. Montague, extreme left, explains features of the development. Group includes, left to right, J. A. Northey, C.N.E. President, H. E. Boyce, Alderman R. E. Belyea, F. T. McKeown, J. P. Coyle, Col. McKenzie Waters, Ontario Hydro's Director of Information, W. Kirkman, Bert Merson, Chairman, Toronto Hydro, A. Stapells, and E. E. H. Wright. This was a feature of London's Western Fair at the 1953 Lindsay Central Exhibition.



FORERUNNER of Ontario Hydro's present display and exhibit method of keeping its customers informed was this 1912 Sir Adam Beck Circus which the first Chairman sent into the rural areas of the province to demonstrate the advantages of using electricity on the farm.

### Hydro on the Farm

Particularly reminiscent of the Sir Adam Beck "circus" in its appeal, an intricate, scale-model farm, complete with stable cleaner, silo unloader, electric brooder, hay-drier, barn ventilating system, as well as a manure elevator, vividly indicated the many uses to which electricity can be put in reducing labor costs and engendering a more pleasant life in Ontario's rural districts.

Many of these colorful expositions of Hydro's progress and its role in modern living, have been on tour throughout Ontario in the past few weeks, making their appearance at several major exhibitions and fairs.

Substituting for the actual St. Lawrence and Niagara models, interesting photographic displays, depicting both projects, were used with dramatic effect in Ontario Hydro exhibit booths at the Lakehead Exhibition at Port Arthur, August 10-15, and at Ottawa's Central Canada Exhibition, August 22 to 29.

High point of the Commission's 1953 presentation was, of course, Toronto's Canadian National Exhibition which, this year, celebrated 75 years of progress.

Here, Ontario Hydro and the Toronto Hydro-Electric System graphically portrayed the role of Hydro in present-day Ontario. Attendants on duty in the Hydro building estimate that approximately 246,000 people viewed the exhibits during the two weeks (August 28 - September 12) the "Ex" was in progress.

For this great annual "show" all

the Ontario Hydro exhibits described above were arranged in two sections of the former Railway Building. Complementing the Commission displays, was the "Tunnel of Light" exhibit presented by the Toronto Hydro-Electric System in its section of the C.N.E. Hydro Building, while the "Magic Mirror," also sponsored by the Toronto System, afforded a glimpse of the wonderland of electricity.

With the "Tunnel of Light" illustrating progress in the field of illumination, a "three-dimensional" mural on the outside of the tunnel, depicted several of Toronto's major buildings, including the Head Office building of the Toronto System.

Interesting in itself, the mural did more than just present a picture of Canada's Queen City. It also explained, by means of an electrically-animated profile panel of Toronto Hydro's underground system, how high-voltage power, generated and transmitted to eight terminal stations by Ontario Hydro, is stepped down and distributed from these points to 45 Toronto Hydro substations and numerous underground transformer units where it is further "stepped down" and delivered to Toronto Hydro customers. Models of four types of Toronto Hydro substations, which are designed to blend with the architecture in a given commercial, residential or industrial area, were used in the mural.

(Continued on page 28)





INGENIOUS and popular with C.N.E. visitors was Toronto Hydro's "Tunnel of Light," which showed progress in the field of illumination.

(Continued from page 27)

#### Municipal Hydro Service

Together, the "Magic Mirror," the "Tunnel of Light," and the mural gave a complete picture of the past, present and exciting future of the electrical age from the standpoint of municipal service.

A typical example of the public interest in the Hydro displays this year was the complimentary letter received from Ivan M. Brodie, Manager of the C.N.E. Exhibit Space Department.

In his letter, Mr. Brodie expressed the congratulations of C.N.E. Directors, whom, he said, considered the Hydro presentation "extremely interesting, very colorful, and amongst the finer exhibits in this year's Exhibition."

Further acclaim was accorded the Niagara model which was a popular feature of London's Western Fair, September 14 to 19, and at Lindsay Centra Exhibition, September 22 to 26, while the St. Lawrence replica was an added attraction at Stratford Fall and Trade Fair during its three-day (September 21-23) run.

The interesting model of the electrified farm was on display at the Northern Ontario Exhibition at Timmins (September 17-23).

An animated Ontario Hydro wall display, showing how power is distributed to industrial, commercial, domestic and rural customers, and designated "Hydro



ONTARIO HYDRO'S model of an electrified farm received interested scrutiny from hundreds of International Plowing Match visitors this year. Here Clare Burt, representing the Commission's Information Division, congratulates Grant Wells, Stouffville, winner of Ontario Hydro prize presented in the Class 18 tractor plow competition. Looking on approvingly are F. A. Lashley, Secretary-Manager, Ontario Plowmen's Association, and Ralph Fisher, Manager of Hydro's Cobourg Rural Operating Area.

FEATURE of the Toronto Hydro-Electric System presentation at this year's C.N.E. was a "3-D" mural, depicting several of Toronto's major public buildings, and indicating by means of an animated profile panel how power generated by Ontario Hydro is "stepped down" and distributed underground to Queen City customers.





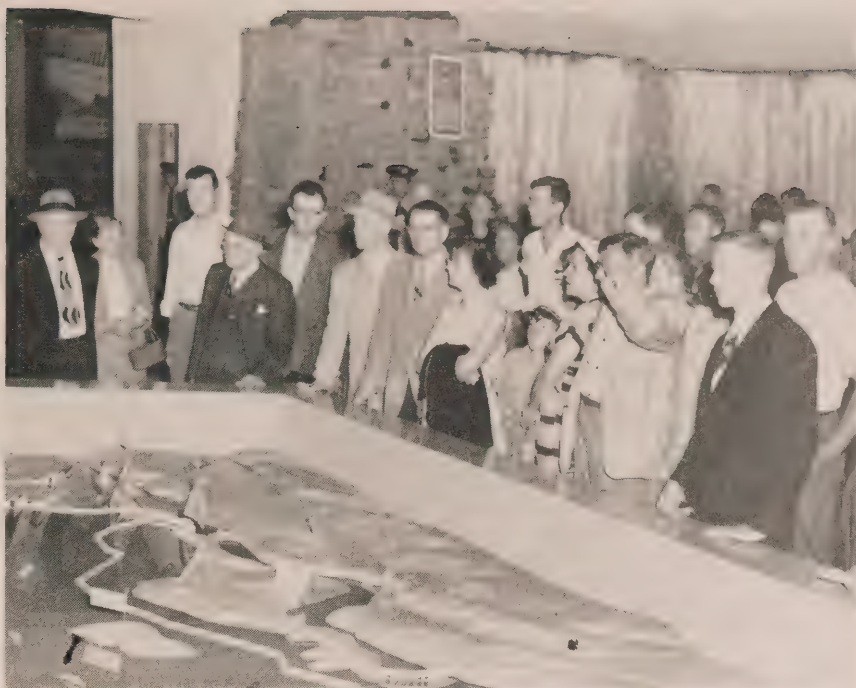
in Your Town," went on the road in July this year for Cobalt Old Home Week. Recently it has made its appearance at Sudburys' Fall Trade Fair (September 17-19), and Ajax Industrial Trade Fair (October 2-3).

For this year's International Plowing Match near Cobourg (October 6-9), the familiar Ontario Hydro tent took its place in the world-famous "Tent City" where hundreds of visitors inspected the model farm and the St. Lawrence model. Rural customers also had an opportunity of discussing their electrical problems with representatives of the Rural Service Department of Ontario Hydro's Consumer Service Division who were able to illustrate voltage losses and other power distribution questions with the aid of a wiring demonstration board.

Ontario Hydro has a significant association with this great "Tent City." Power for lighting and operation of literally hundreds of demonstration machines, as well as for numerous other purposes, is supplied by the Commission over lines and poles specially-built by Ontario Hydro. Spearheading this year's effort was R. E. Fisher, capable Manager of Hydro's Cobourg Rural Operating Area. Mr. Fisher and his staff strung 1.4 miles of single-phase, 4,800-volt line on 68 poles along the streets of the temporary city to provide the necessary power.

A further contribution to the cause of agriculture in Ontario, is the award of an Ontario Hydro prize at each "Match." This year, E. G. Gurnett, Manager, East Central Region, presented a fractional horsepower motor to Grant Wells, R.R. No. 2, Stouffville, winner in the Class 18 tractor plow competition. The Commission was prominently represented at another important Ontario agricultural event—the Royal Agricultural Winter Fair (Nov. 13-21) which, this year, observed its Silver Jubilee anniversary. Featuring this year's Hydro exhibit at the "Royal" was a mobile frequency standardization information bureau. This large red trailer is used in areas where changeover operations are in progress to provide Hydro customers with "on-the-spot" information about the big standardization program.

And so, once again, across the length and breadth of the entire province, the Commission has been busy telling the dramatic "Hydro story" to its shareholders — the citizens of Ontario.



**TYPICAL** of the crowds which gathered around the model of the St. Lawrence Seaway and Power Project during this year's C.N.E. as well as the Stratford Fall and Trade Fair, and the International Plowing Match at Cobourg.

**ONTARIO HYDRO'S** impressive frequency standardization program was dramatized by an animated display showing tiny trucks moving on a hidden track in the same sequence as they would during an actual "cutover" operation. Here William Caesar, Ontario Hydro Information Division representative, answers questions of a group of Hydro customers.





# ALONG HYDRO LINES



## Hugh McKinnon Succeeds R. H. Martindale at Sudbury

Succeeding R. H. Martindale, Neil Hugh MacKinnon has been appointed Manager-Secretary of Sudbury Hydro-Electric Commission.

A veteran of World War II, Mr. MacKinnon was born in Bruce County in 1921. Educated in primary and secondary schools at Kingston, he graduated in engineering from Queen's University.

Prior to his appointment as Assistant Manager of Sudbury Hydro, and Assistant Superintendent of the Nickel City's waterworks department, Mr. MacKinnon was Assistant Superintendent of North York Township Hydro-Electric Commission. He was also associated with Ontario Hydro for over a year, serving on the staff of Frankford R.O.A.

During the Second World War he served with the R.C.A.F. for four years (three years overseas duty). A member of the Association of Professional Engineers of Ontario and the Engineering Institute of Canada, he is also affiliated with the Sudbury Lions Club. Married, he has one son and one daughter.

## Start Work

Paris Public Utilities Commission reports that work has begun on a \$21,000 Hydro sub-station.

## Grand Valley Metermen Hear Three Addresses

Fall meeting of the Grand Valley Metermen's Association was held at the Royal Hotel in Guelph, on October 14. During the morning session J. M. Vanderleck, Ontario Hydro, gave a paper on "Investigations of the Performance of Single Phase Watthour Meters." At the afternoon session two papers: "Work of the CSA Approvals Laboratories," by A. F. Telfer, Executive Assistant, CSA Advisory Committee, and "CSA Requirements for Service Equipment," by J. O. Reeve, P. Eng., Supervising Engineer, Approvals Laboratories, were given.

The meeting was presided over by A. G. Stacey, President of the Association. Considerable discussion took place on the matter of the Association's finances, and it was decided that additional revenue would be required. During the luncheon period a Barbershop Quartet provided entertainment.

## Receive Tenders

St. Catharines Public Utilities Commission has been receiving tenders for the construction of a new office and service building. Closing date for tenders was November 2.

## Millbrook Establishes Public Utility Commission

Millbrook Village Council recently passed a by-law to establish a public utility commission which will administer the water and Hydro systems.

The commission will consist of five members including the reeve and four elected members and will take over after the December election. At present there is a Hydro commission comprising Chairman G. F. Harrington, and Commissioners Stewart Snelgrove and J. W. Wright.

## London P.U.C. Helps Neighbor

Co-operation of London Public Utilities Commission in making available certain urgently needed supplies to the Port Stanley PUC has resulted in an immediate supply of electric and water services to a new harborside grain elevator.

"We had been held up by the scarcity of proper conduit," said Howard Berry Superintendent at Port Stanley, "then the London PUC heard about it and immediately sent us sufficient material to complete the job."

## GEORGE E. CHASE RESIGNS

AFTER 37 years' faithful service to the Hydro customers and citizens of Bowmanville, George E. Chase has resigned as Manager of Bowmanville Public Utilities Commission owing to ill-health.

Ontario Hydro Second Vice-Chairman, W. Ross Strike, Q.C., Chairman of the Bowmanville Commission, in announcing the resignation, stated that Mr. Chase had been granted leave of absence until January, 1954, when his retirement on pension becomes effective. George Van Bridger has been appointed to fill the vacancy.

Active in many noteworthy community projects, as well as province-wide electrical organizations for many years, Mr. Chase was born at Brighton, Ontario. An ardent sportsman, he has been Manager of the Bowmanville utility since 1916, and for several years supervised electrical distribution in the rural areas around Bowmanville, Orono, and New-castle.

A member of the Association of Pro-



G. E. CHASE

fessional Engineers of Ontario, Bowmanville's retiring Manager served as Director of the A.M.E.U. for many years, being elected President in 1947. He was also a Director of the Electric Service League of Ontario.



## F. G. York Succeeds G. R. Davis As Ottawa H.E.C. Manager

GEORGE R. "Cap" Davis, popular General Manager of Ottawa Hydro-Electric Commission, has resigned from his post in the Capital City to accept a similar position with Kingston Public Utilities Commission.

Mr. Davis assumed his new duties at Kingston on November 1, succeeding F. J. Parker, General Manager and Secretary, who has resigned to take a position with a Montreal firm.



F. G. YORK

Succeeding Mr. Davis, Fred G. York became Acting Manager of the Ottawa Commission on November 1. Former Planning and Distribution Engineer, Mr. York is a son of John G. York, who was one of the original employees of Ottawa Hydro, having installed the first meter for the Consumers Electric in 1902. The Consumers Electric became the Municipal Electric, and eventually the Ottawa Hydro. He held the office of Superintendent of the Distribution Department until his retirement in 1938. The new Acting Manager is a son-in-law of the late F. H. Plant, of Ottawa, former Chairman of Ottawa Hydro, who died suddenly last year while holding the office of O.M.E.A. President. Mr. York has been associated with the Ottawa Commission since 1926 when he served as a summer employee. After receiving his university degree he joined the permanent staff, working as a substation operator and line foreman until 1938 when he succeeded his father and



J. A. HIGGINS

## J. A. Higgins Assumes Perth Managership

A Canadian engineer who has spent practically his entire professional career in South America, J. A. Higgins is the new Manager of Perth Public Utilities Commission. He succeeds veteran R. J. Smith who retired recently with 56 years' municipal service to his credit.

Born at Mountain, Ontario, 54 years ago, Mr. Higgins was educated at Kemptville and graduated from Queen's University in civil engineering.

For 25 years he was associated with the International Petroleum Company in Peru, latterly in the position of Chief Engineer. In this capacity he was in charge of a wide range of engineering services, including electric power, communications, and water supply, as well as pipe lines, surveying, and port and harbor maintenance, having a staff of some 20 engineers under him.

Over three years ago he returned to Canada, settling in Perth "because I liked the town and Lanark County as a suitable place for my family, including a son and daughter, to establish roots while they were still young enough to do so."

He became Distribution Superintendent. Following acquisition of the Ottawa Light, Heat and Power Company system, Ottawa Hydro confirmed his appointment as Planning and Distribution Engineer. Mr. York is a registered professional engineer and a member of the A.I.E.E.

## Port Arthur Honors Long-Service Employees

Port Arthur Public Utilities Commission recently recognized the long service of three of its employees with the presentation of gold watches. The presentations were made during a dinner in the Prince Arthur Hotel given in honor of nine employees who have retired, or will retire, during the year 1953.

Those receiving watches were: Miss Bertha Coburn, 44 years' service; Anton Suni, 41 years, and Adolph Zuryck, 40 years. Among the special guests were other retiring commission employees: Miss Lumena Valley, 35 years' service; David Stewart, 27 years; and John M. Smith, 24 years. Unavoidably absent were Jas. K. Shaw, 29 years' service, and Dominic Mastriano, 33 years. William Schmidt, who retired as Superintendent of the Telephone Department May 1 last with 42 years' service, and who was presented with a watch on that occasion, was also a guest.

R. B. Chandler, Manager of the Commission, presided at the dinner and other guests included the executive personnel from the Light and Power, Transit, Telephone and Waterworks Departments. Mr. Sam Ashton, Chairman of the Port Arthur Commission, announced at the dinner that, henceforth, Port Arthur P.U.C. would annually follow the policy of presenting gold watches to those employees who, on retirement, had completed 40 years of service.

## Stanley Lewis Re-Appointed To Ottawa Hydro Commission



J. E. STANLEY LEWIS

Re-appointment of J. E. Stanley Lewis to the Ottawa Hydro-Electric Commission for a further two-year term was announced recently by Ontario Hydro Chairman, Robert H. Saunders. In making the announcement, Mr.

Saunders stated that he was confident that Mr. Lewis, as the Ontario Hydro appointee on the local Commission, would continue to discharge his duties with energy and foresight. Mr. Saunders paid tribute to Mr. Lewis for his excellent past service on the Ottawa Commission.



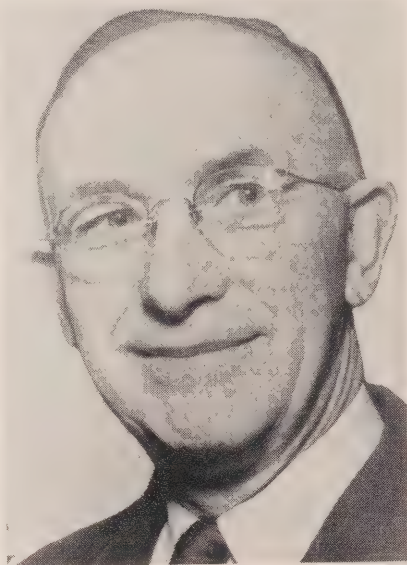
## EX-ALDERMAN JOHN McMECHAN APPOINTED TORONTO HYDRO COMMISSIONER

**A**PPPOINTMENT of John McMechan, prominent Toronto businessman and former Alderman, as a Commissioner of the Toronto Hydro-Electric System, was announced recently by Ontario Hydro Chairman Robert H. Saunders. His appointment fills a vacancy created by the death of Chairman Loftus H. Reid in April of this year. (Bertram Merson, who served as Vice-Chairman, was subsequently appointed to succeed Mr. Reid.)

In announcing Mr. McMechan's appointment to the local Commission, Mr. Saunders stated that his record as a successful businessman and civic administrator, including four years as a member of the Toronto City Council, would prove invaluable in fulfilling the duties of this important post.

Born in County Down, Ireland, Mr. McMechan came to Toronto in 1912. He enlisted in the Canadian Army in 1914 and served overseas during the first World War in France and Belgium with the 42nd Battalion. He was wounded at the Ypres Salient in 1916 and received his discharge in 1919. Upon his return from military service, Mr. McMechan entered the food products field, travelling the province extensively for a ten-year period. Mr. McMechan is President of Donlands Dairy Limited, which he helped establish in 1929.

In 1948, Mr. McMechan was elected to the Toronto Board of Education and for the following four years served on the Toronto City Council as Alderman. During his entire term at City Hall, Mr. McMechan was a member of the Works Committee, serving as its Chairman in 1952. He approached the work of the Committee with great vigor and campaigned very strongly for better street lighting throughout the City. He also



JOHN McMECHAN

served one year as Chairman of the local Board of Health.

Mr. McMechan has been very active in service club work and is identified with a number of business and industrial organizations. He is a member of the Toronto Board of Trade and the Canadian Chamber of Commerce, and also serves on the Board of Governors of the Y.M.C.A. and the Toronto East General Hospital. He is a past president of the Danforth Business Men's Association and an enthusiastic member of the Riverdale Kiwanis Club. Mr. McMechan is married and has two sons, Colin and Wilfred, the former having served overseas in World War II. The McMechan family are active members of Danforth United Church and the new Commissioner's wife devotes considerable time to the Woodgreen Community Centre.

### Ottawa Customers On the Increase

Ottawa's building boom shows no sign of slackening. The Ottawa Hydro-Electric Commission reports that 1,368 new connections for Hydro power were made in the city area during the first nine months of 1953. This brings the total of Ottawa Hydro customers to 63,259.

### Ottawa Expands Transformer Station

Ottawa Hydro-Electric Commission will spend \$140,000 on the construction of their share of the 12,000-volt facilities at the Overbrook Transformer Station, it was announced recently by Chairman Stanley Lewis. Work will be financed from available funds.

### Retired Superintendent Dies At Windsor

Frederick Dixon Hubbell, 69, retired Hydro Superintendent, Windsor Utilities Commission, died unexpectedly of a heart condition in Hotel Dieu Hospital recently. He was a prominent Mason.

A former member of the Windsor Board of Education, Mr. Hubbell for nearly 40 years directed the maintenance and operational side of the Hydro division and supervised most of the development of the present Windsor Hydro system.

Born in Campbellford and educated locally, Mr. Hubbell as a young man worked in Northern Ontario lumber camps. In this work he was known as a "white water man," or a person who ran the logs as they shot through the rapids.

Mr. Hubbell is survived by his wife, the former Frances Jones; two sons, Firth Hubbell, of Roseland, and James Hubbell of Windsor; one daughter, Bernice, Mrs. James Knott, of Windsor and seven grandchildren.

### Available Funds Finance Program

Frankford Hydro-Electric Commission will spend \$3,720 this year on extensions and improvements to the local electricity distribution system, Chairman H. Rose announced recently. The program will be financed from available funds.

### Engineers Award 19 Scholarships

**A** TOTAL of 19 scholarship awards were made to students at Queen's University and the University of Toronto this year, by the Association of Professional Engineers of Ontario, J. Herbert Smith, P.Eng., President of the association, announced recently. Total value of the awards is \$1,350.

Top award winner is Gerald W. Sayle, 19, of Sault Ste. Marie, Ont., who was awarded the A.P.E.O. scholarship worth \$450 for being judged the student with the highest academic standing in Ontario entering Queen's University at Kingston, to study engineering.

This is the first year that such an award has been made by the association and it will alternate annually between Queen's and the University of Toronto, both of which have engineering faculties.

With the awards based upon academic standing, scholarships are valued at \$75, and \$50.



# FOTO-NEWS



**HISTORIC AGREEMENT**—One of the most progressive agreements in Canadian labor history was signed recently between Ontario Hydro and the Ontario Hydro Construction Allied Council, A. F. of L., under which substantial benefits are provided for approximately 9,000 construction workers in 98 trade classifications. Highlights of the agreement were new wage rate increases averaging approximately 9.3 cents per hour; two statutory holidays (Christmas and New Year's Day); and a savings and insurance plan heralded as the only one of its kind offered to construction forces in Canada. The agreement calls for reasonably uniform wage and working conditions for all construction workers on the staffs of Ontario Hydro and its contractors throughout the province. Shown at the signing ceremony (seated) are: Chairman Robert H. Saunders, left, and G. Russell Harvey, Canadian Director of Organization, A. F. of L., and Chairman of the Ontario Hydro Construction Allied Council. Standing, left to right, are: Alex Reith, Grand Lodge Representative, International Association of Machinists; E. Schofield, International Representative,

Hotel and Restaurant Employees and Bartenders International Union; David Forgan, Director of Construction, Ontario Hydro; Dr. Otto Holden, Assistant General Manager—Engineering, Ontario Hydro; W. B. Bowyer, Manager, Hydro's Collective Relations Department; H. Green, Business Representative, International Hodcarriers, Building and Common Laborers Union of America; Ernie Bridges, District Representative, the International Brotherhood of Boilermakers, Iron Shipbuilders, Blacksmiths, Forgers and Helpers.

**BRITISH VISITOR**—Visiting major research establishments in Canada and United States, Sir David Brunt, Chairman of the Electricity Supply Research Council, British Electricity Authority, conferred with Ontario Hydro Research Division representatives recently. While in Toronto, Sir David was one of the Commonwealth delegates at a joint meeting of the American Meteorological Society and the Royal Meteorological Society held in Toronto this year. He is also Professor Emeritus of Meteorology at the University of London. His intense interest in numerous types of scientific and research activities prompted him to visit the Ontario Hydro Research Laboratories. Here he is shown discussing a "Sequence Recorder" being developed in the Commission's Laboratories on Strachan Avenue in Toronto with H. C. Ross, left, and G. B. Tebo, right, Ontario Hydro's Assistant Director and Director of research respectively. The "Sequence Recorder" automatically records the operation of large numbers of relays as they act in rapid succession to clear power system faults.







ARCHED footings of the transmission towers lining the parapet above Hydro's Sir Adam Beck - Niagara Generating Station No. 1 provide photographers with many unique "shots" such as this one taken recently while members of the Toronto Board of Trade were visiting in the vicinity of this station and inspecting the adjacent Sir Adam Beck - Niagara G.S. No. 2 project. Towers for the mammoth new development will be located on the cliff-face above the new plant shown on this month's front cover, but a parapet at the top of the gorge will prevent public access to the tower emplacements from the sidewalk and roadway.



**NTARIO HYDRO**

# NEWS



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**NOVEMBER, DECEMBER, 1953**



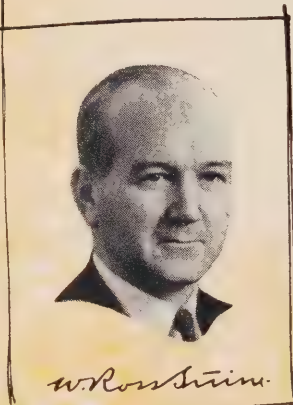




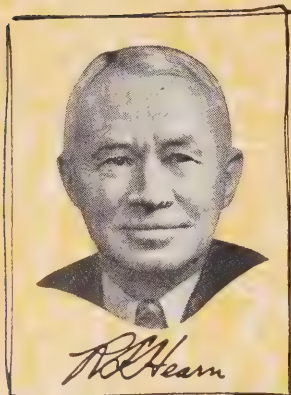
FIRST VICE-CHAIRMAN



CHAIRMAN



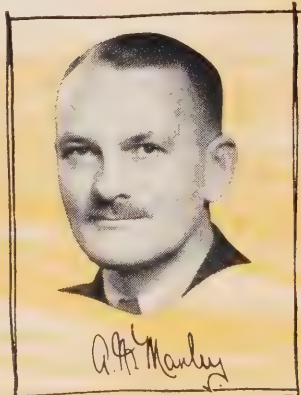
SECOND VICE-CHAIRMAN



GENERAL MANAGER AND  
CHIEF ENGINEER



ASSISTANT GENERAL MANAGER—  
ENGINEERING



ASSISTANT GENERAL MANAGER—  
ADMINISTRATION

# Christmas 1953

As Christmas draws close, it is appropriate that we should pause for a moment to recall the countless blessings that have been ours in the past year. Although 1953 has presented many challenges, many difficulties and disappointments, it has offered many rewards.

At this time of rejoicing, we are conscious of the significant and satisfying achievements of our great nation, and of the many opportunities we have had to participate in this progress, working as we do, on behalf of the citizens of Ontario.

The exchange of Christmas greetings is an old custom—one which we are happy to perpetuate as we salute all the members of the Hydro family for their loyal wholehearted service.

To all employees of Ontario Hydro and all those associated with the municipal Commission throughout the province, to our customers, to the men and women of labor, to our contractors and suppliers and their staffs, we extend our heartiest wishes for a very Merry Christmas and a Happy New Year.



NOVEMBER—DECEMBER, 1953 Vol. 40, Nos. 11 & 12

Published by

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO  
620 UNIVERSITY AVENUE, TORONTO



## LET'S MAKE IT A SAFE AND MERRY CHRISTMAS

**A** FEW DAYS AGO we received a communication from the Canadian Standards Association. It struck us as very timely, and in the interests of public welfare and safety, we reprint the message in full herewith:

"The placing of a powerful agent such as electricity in the hands of inexperienced people, old and young, enabling them by the flick of a switch or the touch of a button to set in motion huge industrial machines, flood a Christmas tree with lights, or run an electric toy train, is the result of skilful engineering, strict control of its use, and manufacturing of equipment which conforms with rigid specifications.

"Don't say to yourself—'it couldn't happen in my home.' Beware! Christmas trees will burn—if they are ignited. Don't run any risks with lighting. Select Christmas tree electrical equipment that has been approved by the Canadian Standards Association, and not candles for illuminating your tree and window decorations. Make sure your Christmas this year will be a safe one.

"A fire hazard exists, when the wiring of Christmas lights is frayed or the bulbs used are unsafe, or if sparks are created in connecting or disconnecting lights. Be sure there are no frayed wires, loose connections or broken sockets. Watch those Christmas gift electrical toys and your electrical appliance gifts. Choose those which comply with the safety standards of the Canadian Standards Association.

"In decorating the home for Christmas, don't place cotton and other flammable material around the tree. It is safe practice to keep electric trains and other electrical toys away from the Christmas tree. Don't hook up electric toys near water, heating or gas pipes. If a fault occurs, a child might be badly shocked. If in doubt call in a qualified electrician.

"Look for the CSA Symbol of Safety. If the electrical device has been approved, it must bear evidence of CSA approval either by a label, approval number on the manufacturer's name plate, or the CSA monogram.

"CSA approved equipment is accepted by all Electrical Inspection Authorities throughout Canada. So do not take a chance—Be sure that your electrical equipment or appliance is legally acceptable—is safe to use—that it is CSA Approved.

"Don't let a preventable accident ruin a joyous Christmas."



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Authorized as second class mail,  
Post Office Department, Ottawa.

## CONTENTS

## Page

Power from the Atom	2
Fifteenth Power Source	4
Cyclone Problems	6
A Cloud of Witnesses	8
Symbol of Progress	10
Uniformity and Strength	14
The Magic of the Christmas Tree	16
Seven-League Strides	18
Iron Bridge Inaugural	22
Foto-News	24
Veteran Span	25
Life Line	26
Hydro Home Forum	27
Along Hydro Lines	28

## Help Fight TB



## Buy Christmas Seals

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# POWER FROM THE ATOM

**Ontario Hydro, with Atomic Energy of Canada Limited, to study possibility of developing an atomic reactor for the generation of power**

**P**REMIER Leslie M. Frost and Hydro Chairman Robert H. Saunders announced recently that arrangements had been completed with the Federal Government, through the Rt. Hon. C. D. Howe, for Ontario Hydro to carry out, with Atomic Energy of Canada Limited, a feasibility study on the development of an atomic reactor for the generation of power. It was stated that Ontario Hydro, with the concurrence of the Ontario Government, had sought the opportunity to undertake this work as protection for its future power supply. The Dominion Government, had sought the opportunity in accordance with its previously-announced policy of providing assistance to Canadian utilities wishing to enter into developmental work in nuclear power generation.

The general direction of the work will be the responsibility of Dr. Richard L. Hearn, Ontario Hydro's General Manager and Chief Engineer, and Dr. W. B. Lewis, Vice-President in Charge of Research and Development, Atomic Energy of Canada Limited. Dr. Hearn has been in close touch with developments in the atomic energy field as a director of Atomic Energy of Canada Limited.

## **Ontario Hydro Staff**

The necessary facilities will be provided at the Chalk River plant where a small staff of Ontario Hydro engineers and specialists from the Chalk River establishment will be set up, headed by a project coordinator appointed by Ontario Hydro. The program, as presently visualized, would require about two years at a cost approximating \$100,000 a year.

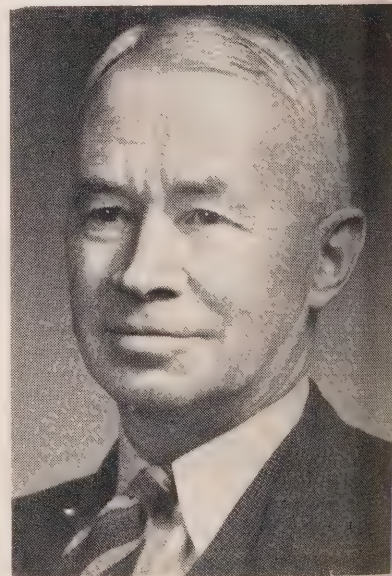
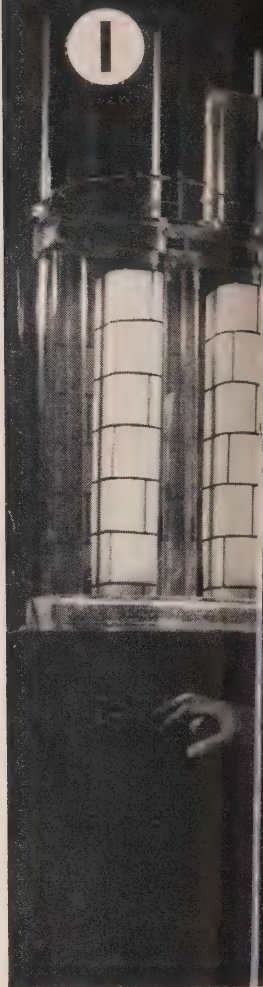
It was emphasized that Ontario Hydro

must, at all times, work several years ahead of present power requirements and is doing everything possible to explore new power sources. At the present time Hydro has in progress a number of field surveys and engineering studies regarding possible future sites throughout the Province. Now that nuclear development has reached the point where it is felt that work in the field of future power generation can be productive, Ontario Hydro is anxious to lose no time in exploring the opportunity fully, as protection for its future power supply.

Hydro is pressing forward vigorously with the greatest expansion program in its history. Thirteen new power sources have been brought into service since 1945, and on completion of the first stage of the fourteenth source—the vast new Sir Adam Beck-Niagara Generating Station No. 2 project—in 1956, Ontario Hydro's dependable peak capacity will have been raised to 6,340,500 horsepower (an increase of 144 percent over the 1945 figure).

The dependable peak capacity of the Southern Ontario System in December, 1953, is estimated at about 3,000,000 kilowatts. At this time 71 percent of the total will be derived from sources considered to be variable because of the nature of the flow of the rivers on which the sources are located.

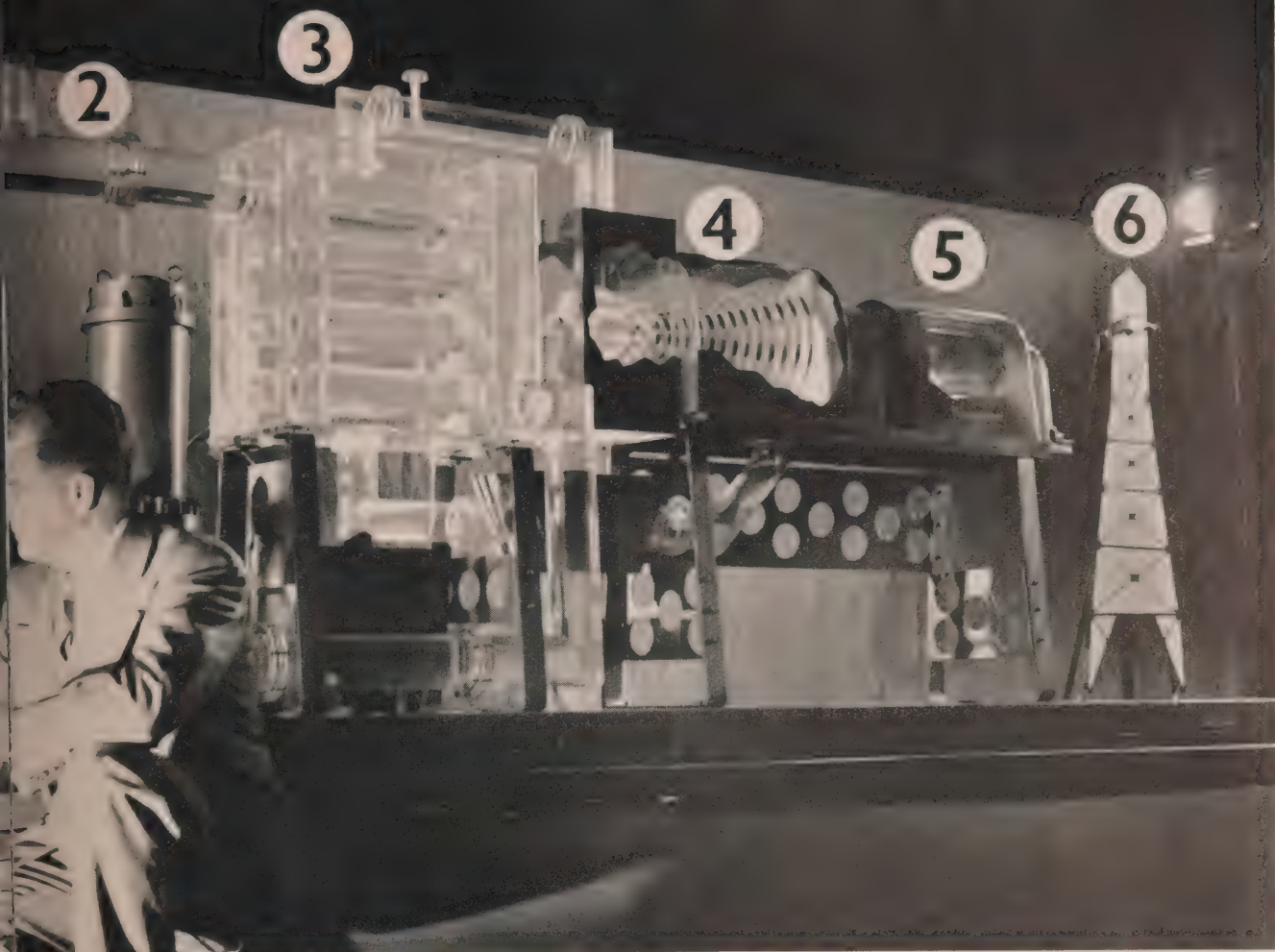
Present estimates of load and capacity indicate that immediately after completion of the Niagara and St. Lawrence developments, additional generating resources will be necessary. That is why foremost attention must be given at this time to the feasibility of atomic power generation to meet the requirements of the future.



**DR. RICHARD L. HEARN**

Ontario Hydro's General Manager and Chief Engineer, and a Director of Atomic Energy of Canada Limited, who will be in charge of the general direction of the Commission study in conjunction with Dr. W. B. Lewis, Vice-President in charge of Research and Development, Atomic Energy of Canada Limited.





MODEL of an atomic power plant, shown at the Annual Congress of American Industry of the National Association of Manufacturers, presents an interesting conception of the atomic pile of tomorrow evolved by one group of engineers. The pile (1) (as depicted in this model) will produce enormous amounts of heat by the splitting of uranium atoms into what are actually well-controlled dropping atomic bombs. The heat would be taken from the pile by a fluid — a molten metal — circulating in pipes and transferred by pipe (2) and the pump below it. The heat-containing fluid would then be brought to a heat exchanger (3) where the heat of the pile would be transferred to water which would be turned into steam. The steam would drive a turbine (4); the turbine would move the armature of a generator (5), out of which would come electricity to the power line (6). The power plant, which is only a model and does not work, was an exhibit of the Westinghouse Atomic Power Division.



CONFERENCE between British and Canadian atomic energy and Ontario Hydro representatives served to emphasize the Commission's keen interest in and connection with the latest developments in atomic energy research, particularly Hydro's General Manager and Chief Engineer, Dr. Otto Holden, who is a Director of Atomic Energy of Canada Limited—a Crown organization. The accompanying group, left to right, Dr. Otto Holden, Hydro's Assistant General Manager—Engineering; Sir Christopher Hinton, Division of Atomic Energy (Production), of Risley, Warrington, England; Chairman Robert H. Saunders, and Dr. W. B. Lewis, Vice-President, Research and Development, Atomic Energy of Canada Limited. Mr. Saunders is greeting Sir Christopher as he arrived by plane from Montreal for the talks during which he inspected several Ontario Hydro installations.



# FIFTEENTH POWER SOURCE



AERIAL VIEW of lower Manitou Falls on the English River, site of the fifteenth power development undertaken by Ontario Hydro since 1945, which will augment Northwestern Ontario resources by 46,200 horsepower. It is scheduled for initial operation by early 1956.



## Ontario Hydro to Start Work Soon at Manitou Falls Site in Northwestern Ontario

**K**EEPING pace with the industrial, mining, and municipal development in Northwestern Ontario, work will start shortly at Ontario Hydro's new Manitou Falls Generating Station on the English River.

Scheduled for operation early in 1956, the new plant will have an installed capacity of 46,200 horsepower to help meet future power requirements in this rapidly expanding section of the province.

Representing the fifteenth new power source in the Commission's record expansion program, this latest development, to be built at an estimated total cost of \$17,505,600, will consist of a new generating plant with an anticipated cost of \$15,577,000; a 13-mile, 115,000-volt transmission line; a 14-mile access road, and housing accommodation at the site for the operating staff.

At the present time Ontario Hydro construction forces are engaged in building an extension to the Commission's Pine Portage Generating Station on the Nipigon River. This addition will double the capacity of this plant (to 168,900 horsepower in four units) which was placed in initial operation in June, 1950, thus enabling Hydro, with its other resources in this section of Ontario, to supply load demands up to the end of 1955. The additional power from the Manitou Falls G.S. will help to meet

system requirements of the Commission's Northwestern Division until 1959.

In announcing Ontario Hydro approval of this new power project recently, Chairman Robert H. Saunders said that a comparison of primary peak requirements in 1951 and 1952 graphically illustrated the steady load growth in Hydro's Northwestern Division, and the reasons underlying the decision to proceed with the Manitou Falls development.

In 1951, an output of 213,900 kw. (268,800 hp.) was required. Last year, this output advanced to 231,722 kw. (310,600 hp.), an increase of 8.3 percent, while annual energy requirements advanced by 5.3 percent. More recently, power figures for the week ending November 8, 1953, show that the primary peak demand in the Northwestern Division exceeded that of the corresponding week of a year ago by 1,300 kilowatts. Primary peak requirements are expected to be even higher in 1954, based on the present rate of increase.

Thirteen new power sources have been placed in service since Hydro's all-system expansion program began in 1945, to supply the electrical needs of all classes of customers throughout the province. By the end of this year, the Commission's dependable peak capacity will be 4,807,100 horsepower, an increase of 85.1 percent over the 1945 figure.



MANITOU FALLS development is located about 75 miles northeast of Town of Kenora.

"We at Hydro believe that the future of the northwestern section of Ontario, with its vast potential, hinges on an adequate supply of electricity," stated Mr. Saunders. "With Manitou Falls 'in service' in 1956, the year of completion of the 1,428,000 horsepower phase of Sir Adam Beck-Niagara G.S. No. 2—Hydro's 14th new power source—more electricity will be available for the development of natural resources. Our decision to proceed with the Manitou Falls G.S. is further evidence of our confidence in the vital role of this region in the progress of Ontario and Canada as a whole."



ONTARIO HYDRO engineers, accommodated in the camp on the far bank of the river, have completed most of the preliminary surveys and foundation investigations for the new development which is situated approximately 15 miles downstream (almost due west) from the Commission's 26,000-horsepower Ear Falls Generating Station. Boats from Ear Falls G.S. offer most convenient means of access to site at present.



# CYCLONE PROBLEMS

Interesting panel of speakers at 21st  
annual A.M.E.U. Western Ontario  
Accounting and Office  
Administration Conference



**R**EPRESENTING 68 municipal Hydro and public utility commissions, some 200 or more delegates set a new attendance record at the recent 21st annual conference sponsored by the A.M.E.U. Western Ontario Division, Accounting and Office Administration Committee.

Held at London, the conference was highlighted by the presentation of the President's Citation to Chairman John Cook by A.M.E.U. President Norman Grandfield. It was an acknowledgement by the A.M.E.U. Executive of the distinguished service and leadership Mr. Cook had given to the Western Committee since its founding in 1932. Mr. Cook has been Secretary of the committee for 17 years, and Chairman for the last four years.

Guest speaker at the luncheon was Dwight R. Ladd, Assistant Professor, Department of Business Administration, University of Western Ontario. Other speakers were C. S. Phelps, and H. A. Luckins, Manager and Secretary-Treasurer, respectively Sarnia Hydro-Electric Commission, and A. W. Murdock, Railway Study Engineer, Ontario Hydro.

Professor Ladd in his address, described the reasons for misunderstanding between accountants and management and advised methods of overcoming it.

"One finds that some accountants are extremely frustrated in many cases, feeling that they are bogged down in routine work—making entries, paying bills, and collecting accounts. They feel that they are capable of doing much more than this. Thus the question arises 'Why doesn't management ask for help more often?'"

## Management Bewildered

For one reason, the speaker explained, managers often feel bewildered when they regard their accounting officers as staffs. Not only do they use a different language, but there exists the feeling which so many people have about figures. "I was never any good in maths." That is the most common report given by people in discussing their formal education, Professor Ladd said.

"The typical business administrator is not particularly interested in the intricacies of double entry bookkeeping, but is interested in having a useful product turned out by operation of a set of books, just as by the operation of a machine in his factory."

Professor Ladd, in his advice to accountants seeking "to get through to management," suggested that they approach their job from the point of view of its purpose. Accountants should recognize that a report prepared for one purpose is not necessarily the report which will best fill another purpose.

Specifically, the speaker said: "Pay a great deal of attention to the form in which you present your data. If we put ourselves in the position of the user of our report, we should find the best solution to the problem. The usefulness of work to others, rather than ease and simplicity of doing it, or that 'we have always done it that way'—should be the primary consideration."

The speaker was introduced by V. A. McKillop, General Manager, London P.U.C., and W. R. Mathieson, Secretary.

**CHAIRMAN John Cook, Windsor, right, is awarded the President's Citation by A.M.E.U. President N. Grandfield in acknowledgment of the distinguished leadership Mr. Cook has given Western Ontario**



A RECORD number of delegates attended the 21st annual Accounting and Office Administration Conference. Luncheon speaker was Dwight R. Ladd, Assistant Professor, Dept of Business Administration, University of Western Ontario.



Treasurer, A.M.E.U., Toronto, extended the vote of thanks.

### Cyclone Problems

Mr. Phelps speaking on the subject of the Sarnia tornado in May this year, and the subsequent Hydro problems, gave a general outline of some of the difficulties faced by the line crews in restoring service.

Mr. Luckins confined his remarks to the accounting questions which confronted the Sarnia Hydro Commission as a result of the storm.

"During the first two or three days, there was little chance for anyone in the general office to apply themselves to accounting, except that we opened the cashier's wicket for payment of accounts."

Billeting of the out-of-town men was hampered by the severe damage to local hotels, explained Mr. Luckins. It was necessary to arrange for accommodation in private homes. Breakfast was provided at a Sarnia church. The female staff of Sarnia Hydro office prepared sandwiches and hot coffee for the men at the office and also at the sub-station.

Turning to the question of insurance, in discussing damages to the Sarnia Hydro system, Mr. Luckins urged that all utilities make periodic appraisals of their stock and equipment to ensure that they have adequate coverage.

In the case of Sarnia Hydro, the local commission believes that when final settlement is made on the insurance claims arising from the cyclone earlier this year, the cost of repairing damage and making replacements will have been recovered in full.

"It is recommended that every three or four years your insurance coverage be reviewed in the face of rising prices," said Mr. Luckins.

### Interpretation of Rates

Mr. Murdock, Ontario Hydro's Rate Study Engineer, gave a review of changes embodied in the new edition Standard Interpretation of Rates booklet.

"Before any revisions were made, some 122 municipalities were contacted to discover any weaknesses they had encountered in the old book. Then, all suggested changes were studied carefully by the A.M.E.U. Rates Committee at a series of meetings and reviewed by Hydro's Legal Department."

Mr. Murdock told delegates, "that in case of a dispute with a customer, these interpretations must necessarily form the basis of settlement. It is, therefore, very important that they be closely adhered to."

"The two words 'shall' and 'will' have been used with the intention of making the rulings mandatory as far as possible. This is necessary if we are to achieve a uniform application of rates. In certain places, the final decision is left to the discretion of the municipality. Here the word 'will' is used."—by H. B. Wood.

TIME-**SAVING** features of the modern duplicating machine attracted the attention of this group of young ladies, from l. to r.: Mrs. G. M. Weber, and Eileen Ament, both of Listowel Public Utilities Commission; Ruth Snell, Forest P.U.C.; Nora Ralston, Merritton Hydro-Electric Commission, and Betty Haines, Niagara-on-the-Lake Hydro-Electric Commission. Sales representative is Walter Forest of Listowel.



▲ George A. Phillips, Smiths Falls H.E.C., right, and E. A. Washburn, Assistant Manager, Stratford P.U.C. discuss utility administration.



AMONG the delegates attending were, from l. to r. C. E. Hodgson, Regional Accountant and Office Manager, Western Region, London; R. S. Reynolds, Manager, Chatham P.U.C.; R. M. Laurie, Manager, Western Region, and J. W. Pearl, Manager, St. Thomas P.U.C.





# A CLOUD OF WITNESSES

**"Compassed about with so great a cloud of witnesses"**

**—Hebrews XII, 1.**

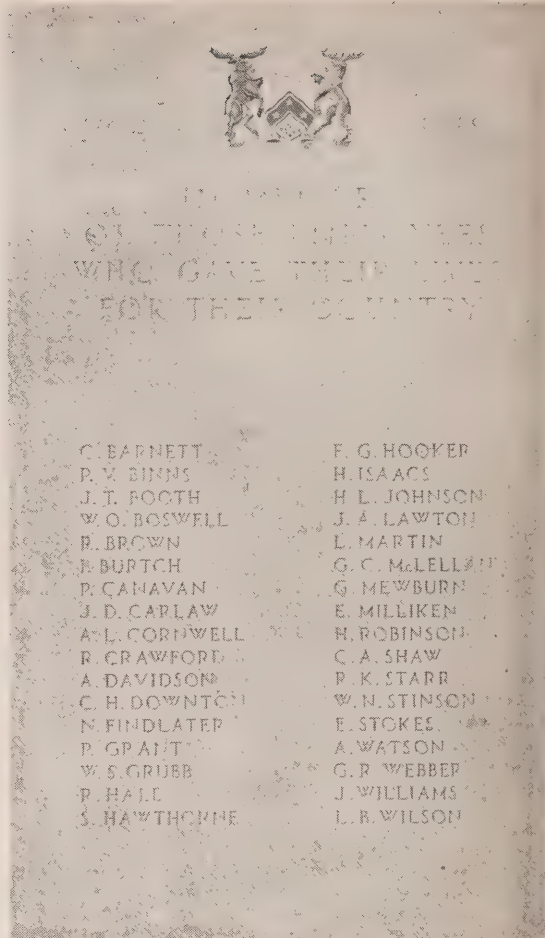
IN THE swift twilight of November 10, Toronto's busy University Avenue foresook the workaday world for a space, as the living honored the dead, with the unveiling of two stone memorial plaques set into the reveals of the main entrance of Ontario Hydro's Head Office. Here, etched in Queenston limestone, below a full-color reproduction of the Ontario Hydro coat-of-arms and crest, are the names of those Commission employees who laid down their lives in two world wars . . . 34 in the First World War, and 50 in the Second World War.

Prime Minister Leslie M. Frost, wearing four medals on his top-coat, spoke of the "great invisible cloud of witnesses" also being honored on a solemn occasion such as this—the men of Canada who had made the supreme sacrifice. The Prime Minister unveiled the tablet to the memory of those who had fallen in the war of 1914-18, while H. H. Leeming, senior living Past President, Ontario Hydro Branch No. 277 of the Canadian Legion, performed a similar office for the dead of 1939-45.

"Too often," said Hydro Chairman Robert H. Saunders, in the course of a brief and moving address, "the job of keeping green the memory of Canada's war heroes is left to returned servicemen and women."

Several hundred stood silently throughout the impressive ceremony, which began with a parade of 100 Hydro Legion members, seven of whom were women veterans. The "Last Post" and "Reveille" were sounded by trumpeters of the 2nd Signal Regiment, while the wail of the "Lament" from the pipes of the 48th Highlanders recalled the supreme sacrifice of Canada's Fallen. Even the traffic seemed to be hushed during the two minutes' silence.

A prayer of dedication was offered by the Branch Padre, Rev. R. J. Bruce Hunter, D.D., M.C., and wreaths were laid at the foot of the plaques by W. Ross Strike, Q.C., 2nd Vice-Chairman, Ontario Hydro, and T. W. Mills, President of the Ontario Hydro Legion Branch. Past President Peter Parker was Master of Ceremonies. The memorial tablets were designed by the Commission's architect, Kenneth H. Candy.—by Horace Brown.











WATCHING Hydro Chairman Robert H. Saunders cut the traditional ribbon symbolizing official opening of Scarborough's newest public building are, l. to r., Reeve O. E. Crockford, O.M.E.A. President Lt. Col. A. A. Kennedy, Commissioner John Brown, A.M.E.U. President Norman Grandfield, and Scarborough Chairman A. O. Leslie, who presided during the ceremonies.

## New headquarters of Scarborough Public Utilities Commission Designed to Serve one of Canada's "Fastest-growing" Municipalities

**F**ITTING symbol of the phenomenal growth of the municipality it serves, the modern headquarters building of Scarborough Public Utilities Commission was officially opened recently amid the plaudits and congratulations of a large assemblage.

Stressing the importance of keeping the public constantly informed of Hydro's progress, Chairman Robert H. Saunders cut the traditional ribbon to formally inaugurate the three-storey edifice, in the presence of a large group of civic, government, and Ontario Hydro representatives, as well as customers of the local Commission. A. O. Leslie, Chairman of Scarborough P.U.C., presided, while Rev. G. A. Beatty of Agincourt offered the prayer of dedication.

### "Golden Mile"

Scarborough Township, with its "Golden Mile" of industry, which, it is estimated, will be worth \$500 million

when completed, and with its unprecedented housing developments, is recognized as one of the "fastest-growing" municipalities in Canada. The new headquarters of Scarborough P.U.C. is designed to keep pace with this and future expansion. With 25,000 square feet of floor space, the building shows a 200-foot wall of glass, steel and stone to busy Kingston Road, at the corner of Birchmount Road. Its harmonious color schemes meet the customer pleasantly on entry. It is one of the first structures in the country to employ the new principle of louvres on the windows, permitting control of the amount of sunlight to enter the offices.

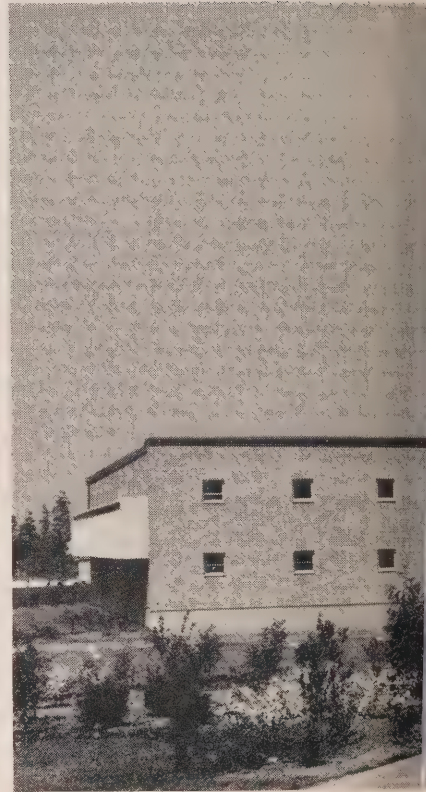
Mr. Saunders congratulated Mr. Leslie, his fellow commissioners, John Brown, and O. E. Crockford, Reeve of Scarborough Township, and the loyal and efficient management and staff, headed by the Manager and Secretary-Treasurer,

Ronald Harrison, for their devoted efforts on behalf of the community.

"This building," he said, "is a monument to their belief, and that of their fellow-citizens, in the future of this flourishing township."

### Rapid Expansion

The speaker traced the growth of the Scarborough Public Utilities Commission from its inception in 1921 under the first Commission composed of J. T. Stewart, W. H. Paterson, and A. Essex. In 1922, the local Commission employed a staff of 10 and served 1,400 families with electricity and water, mostly in the southwest portion of the township. By the end of 1953, it is estimated Scarborough P.U.C. will have a staff of 150; the operations will cover the entire 7 square miles of the township and its population of more than 70,000. The forecast for the year's end is for 28,000 electric customers, including some 7,000





# L OF PROGRESS



REGARDED as one of the finest public buildings in the Toronto metropolitan area, the handsome new headquarters of Scarborough P.U.C. consists of the main administration building, right, and the storage and service garage, left, which faces on Birchmount Road.

...ural customers gradually being absorbed from Ontario Hydro, which has authorized construction of an \$80,000 substation in the Wexford area to meet anticipated load in 1954.

The Scarborough Commission has expanded its operation to the extent that its assets at December 31, 1952, were \$4,02,236, after depreciation and including equity in the Hydro System, while the comparable figure on December 31, 1945, was \$920,135.

## Many New Industries

In 1952, 110 new industries located in the Toronto Metropolitan area. Of these, 52—or almost half—located in Scarborough. But this growth, which township officials claim to be the fastest of any community in Canada, has not only been industrially. Last year, a total of \$36,32,565 in building permits was issued in Scarborough. Of this amount, repre-

senting 4,515 permits, \$26,534,000 was for residential purposes. Great housing schemes, such as Maryvale Gardens, where 2,000 homes will be erected in a proposed building program of some planned area of 400 acres, and another 9,000 new homes, mean that Scarborough's industrial expansion is matched by its residential growth. Since 1946, there have been 14,201 commercial, industrial and residential structures built in Scarborough, with a consequent need for service from the public utilities.

## Ontario Hydro Growth

In referring to the importance of providing information for the people, Mr. Saunders pointed to statistics showing the tremendous parallel growth of Ontario Hydro in recent years. Total assets today stand at \$1,349 million, and revenue last year amounted to more than \$112 million. Hydro is an institution

that has spent, since 1945, some \$923 million on capital construction and is constantly going to the investing public to sell its bonds. Since 1945, Hydro has sold bonds amounting to \$930 million, of which \$780 million has been floated in Ontario.

"It's a great tribute to this organization, a great tribute to the fact that we have had men similar to your managers, similar to Norman Grandfield and the men he represents on the Association of Municipal Electric Utilities—similar to your Chairman, your Reeve and the members of your commission, and Lt. Col. Kennedy of Owen Sound and the

*(Continued on page 12)*





EQUIPPED with modern lighting facilities, the new main building combines function and beauty in its tasteful design.



MANAGER Ronald Harrison, left, receives congratulations from sister-in-law and brother, Mr. and Mrs. Wm. Harrison, Toronto, who were among the many spectators at the recent opening ceremony.



# SYMBOL OF PROGRESS

(Continued from page 11)

group he represents in the Ontario Municipal Electric Association. These men deserve great credit for a job extremely well done over the years," the Hydro Chairman stated.

Brief addresses extolling the beauty and functional usefulness of the building and the work of the Commission were given by Frank Enfield, M.P., York-Scarborough; Bertram Merson, Chairman, Toronto Hydro-Electric System; Reeve Crockford and John Brown of the Scarborough P.U.C.; Lt. Col. A. A. Kennedy, President, O.M.E.A.; Norman A. Grandfield, President, A.M.E.U.; Controller David Balfour, representing Toronto City Council; F. G. Gardiner, Chairman, Metropolitan Council of Greater Toronto; A. U. Sanderson, representing the Commissioner of Works, Toronto; John Bradfield, architect, and Mrs. D. Whiteside, representing the contractor, Walter Davidson Co. Ltd.

Following the opening ceremonies, a tour of the new office and warehouse building, as well as the adjoining spacious garage was made by those present, after which refreshments were served.

## Many Compliments

The tour brought forth many compliments and comments on the modern facilities incorporated in the handsome structure. The building combines several features unique to Canada, some having

been adapted from South American and Swiss designs. The architect had a problem in design, in that the lot has an angle of sixty degrees at the corner. No direct access to Kingston Road because of Department of Highways regulations was permissible. The Department also stipulated that the building had to be kept well back from both the highway and the corner, and the township building line on Birchmount Road had to be respected.

With all these necessary restrictions in mind, Mr. Bradfield executed a design that has resulted in a breathtaking structure, which Scarborough residents view with justifiable pride. The building is V-shaped. The main part, facing Kingston Road, contains storage and service departments on the ground floor, with offices and other facilities on the floor above. The top floor houses the engineering and other departments.

The main entrance tower on the west has doors at two levels, which lead off into the customers' parking lot on Birchmount and on to Kingston Road. The garage for storing and servicing Hydro trucks makes the second wing of the "v". A sweeping curve forms a connecting link with the main building. This garage section also houses the heating plant, washrooms and lunchroom. —By Horace Brown.



ON HAND for the official opening ceremony was Frank Enfield, M.P., York-Scarborough, left, who extended his congratulations to the local commission. He is shown chatting with Scarborough P.U.C. representative Thomas Quance during refreshment period.

SPACIOUS main business office of the new building was converted into a temporary auditorium for the official opening during which Hydro Chairman Robert H. Saunders, right, emphasized Hydro's expanding role.







# UNIFORMITY AND STRENGTH

## W. Ross Strike Commends Uniformity of Agenda at District O.M.E.A.

### Meetings to Focus Province-wide Attention on Important Problems

**A**Gainst the informal background of the Stratford Country Club, over 100 delegates at the annual convention of District No. 6 O.M.E.A. heard Ontario Hydro's Second Vice-Chairman, W. Ross Strike, call upon them to keep their Association strong and to give all the co-operation possible to President Lt. Col. A. A. Kennedy.

The meeting followed closely the pattern of other district conventions held earlier this year. Mr. Strike explained that this uniformity of agenda had been decided upon at a June meeting of District Presidents and Secretaries. This had resulted in province-wide attention being focused on important mutual problems before they were presented at the annual meeting.

"In this way, we hope to strengthen the local commissions and to encourage the commissioners to be more policy conscious, not only with respect to their own municipality, but in Ontario Hydro matters. We, at Hydro, value the opinions of these men and particularly their informed opinions," the speaker said.

Continuing, Mr. Strike stated that by making these meetings as interesting as possible a greater number of commissioners, who represent an important cross-section of Ontario's business men, would be encouraged to attend.

Pointing to the fact that Hydro seems to attract the busy and capable men in a community, Mr. Strike said: "I want to pay tribute to Lt. Col. A. A. Kennedy and D. P. Cliff, who are giving so unselfishly of their time in order to make the Association strong."

#### Legislative Amendments

Mr. Strike during the balance of his address, outlined the legislative amendments which had recently been made in the Power Commission Act, Municipal Act, and the Public Utilities Act.

"First thing we must remember is that Ontario Hydro has no authority outside the Power Commission Act, and the same applies to local utilities which are guided by the Public Utilities Act. While we can apply business principles in solving utility problems, we must abide by the provisions of these Acts."

The speaker reminded his audience that the Public Utilities Act is based on the experience gained by some 40 years of utility administration, and when amendments and changes in the act are planned they should be studied closely for their possible adverse effect on other clauses in the act.

Interpretation of new legislation making utilities taxable is not yet consistent,

Mr. Strike observed. Litigation has been commenced in one Ontario municipality, he noted, on the question of taxing filtration beds and other equipment of the waterworks plant.

"It seems probable that the attention of the framers of the legislation was directed more to the taxation of the electrical utility, and its effect on the waterworks was not given the same attention."

Recent amendments outlined by Mr. Strike included:

1. Legislation empowering the local municipalities in the 25-cycle areas to carry on advance 60-cycle frequency standardization. This applies in case where 60-cycle power is being made available parallel with 25-cycle in the course of the changeover program.
2. The Province of Ontario has been granted the right to issue bonds on behalf of Ontario Hydro. As a result of this, it has made Hydro bonds more acceptable in the American market, than if they were offered by a publicly-owned organization.
3. New legislation now makes it possible for waterworks departments to establish a reserve fund, and to make provision for payments to reserve for paying their annual profits over municipalities.





**NEWLY-ELECTED EXECUTIVE** members of District No. 6 O.M.E.A., from l. to r., are: Second Vice-President, H. O. Hawke, Galt; Director, G. W. Gordon, Sr., Kitchener; Past President, C. K. Merner, New Hamburg; President, A. J. Girdwood, Guelph; Directors, J. H. Francis, Tavistock; A. E. MacIntyre, Stratford, and Secretary-Treasurer, W. J. Bishop, Guelph. Unavoidably absent were: First Vice-President, T. J. Moffat, Listowel, and Directors George Glover, St. Marys, and Dr. H. A. Mutton, Mitchell.



**A FRIENDLY "tabby"** responds to a caress by District No. 6 President, A. J. Girdwood. From left to right are H. O. Hawke, Galt; H. B. Mattson, Manager, Preston; Robert Hillery, Administrative Assistant — Regions, Ontario Hydro; Mr. Girdwood, and O. J. Little, Chairman, Preston P.U.C.

**ONTARIO HYDRO'S** new Director of Consumer Service, I. K. Sitzer, left, and Harvey Hawke, veteran O.M.E.A. and Galt P.U.C. member talk over municipal Hydro rate problems.

### Election of Officers

During the convention A. J. Girdwood, Guelph, was re-elected President of District No. 6 O.M.E.A. Other officers for the coming year, elected by unanimous vote were: Past President, C. K. Merner, New Hamburg; First Vice-President, T. J. Moffat, Listowel; Second Vice-President, H. O. Hawke, Galt; Secretary-Treasurer, W. J. Bishop, Guelph; Directors: J. H. Francis, Tavistock; George Glover, St. Marys; G. W. Gordon, Sr., Kitchener; A. E. MacIntyre, Stratford, and Dr. H. A. Mutton, Mitchell. A sixth director is to be chosen by the incoming executive.

M. J. McHenry, former Director of Hydro's Consumer Service Division, and now Consultant to this Division, outlined to the delegates the new method of costing power to municipal systems.

"The former method, termed the 'traditional' method, was based on the elements which entered into the costing of power," explained Mr. McHenry. "It was used until two years ago and was based on a comparatively simple and uncomplicated system. Originally, some 13 municipalities were served and depended on Niagara for power."

As the sources of generation increased

and the transmission system expanded it became extremely difficult to break down these elements, said the speaker.

"It became almost impossible to determine which way power was flowing and to which municipality. Certain assumptions had to be made and these grew with the system. The result was that the traditional method of costing power was not suitable for a complex system," the speaker said.

### Cost Functions

Based on a study made by the Clarkson-Gordon Company, the Commission decided to revise the system and to base it, not on the elements, but on the functions of cost. These are: 1—Power supply; 2—Bulk Transmission; 3—High tension transmission; 4—High tension step-down; 5—Low tension distribution; 6—Distributing stations; 7—Division charges; 8—Contingencies; 9—Rate stabilization; 10—Frequency assessment, and 11—Direct customers.

"The present system of power costing, although of considerable magnitude, is still less difficult to apply than the old traditional method under present conditions," Mr. McHenry stated.

(Continued on page 32)



**FORMER PRESIDENT** of District No. 6 O.M.E.A., J. Waldo Monteith, M.P., Perth, second from right, who officially welcomed the delegates, talks over old times with W. Ross Strike, Ontario Hydro's Second Vice-Chairman, extreme left, a former president of the O.M.E.A. and of District No. 1. Lt. Col. A. A. Kennedy, second from left, is President of the O.M.E.A. On the right is A. B. Manson, Manager, Stratford P.U.C.



# THE MAGIC OF THE



RINGING BELLS, shimmering snow, gaily-wrapped parcels, twinkling lights, carols, happy laughter, and the great brown turkey roasting in the oven.

They are all part of our observance and our conception of the joyous Christmas season. But there is one item missing in the list, that, for thousands of Canadians, is the very centre of the celebration of this great Christian event.

It is the Christmas tree!

Be it balsam, fir or a handsome pine; be it a great towering specimen of the flora species, or only a modest seedling perched on a table in a city apartment, yet, it seems to be invested with a magic that awakens in each of us a feeling of anticipation and an inner happiness.

Why the Christmas tree?

Its origin as a symbol of our present-day Christmas has been traced back to an eighth century legend wherein St. Boniface, an English missionary to Germany, came upon the pagans of Fritzlar as they were about to offer a human sacrifice as part of their Yule festivities. Approaching a giant oak tree, the ancient tree of worship, he felled it with an axe. As it crashed to earth it destroyed all vegetation save a small fir tree. Pointing to the little tree, he suggested that they make it their holy tree for "it is the wood of peace—your homes are built of the fir."

"It is the sign of an endless life, for its leaves are evergreen. See how it points upward to Heaven. Let this be called the tree of the Christ Child—gather about it not in the wild woods but in your homes. There it will shelter no deeds of blood (human and animal sacrifices to pagan dieties), but loving gifts and rites of kindness."

Delving into French and German folklore, one finds the origin of the Christmas tree credited to Bonchevalier. On Christmas eve, walking through a forest he came upon a towering evergreen, aglow with shimmering candlelight and crowned by an iridescent halo. This phenomenon was interpreted by his mother as the "Tree of Humanity," the halo being the Christ Child watching over all the peoples of the world represented by the candles.

Martin Luther, another similar story recalls, was entranced by the twinkling of the stars and the sparkling of the snow-flecked branches of the evergreens in the radiance of the moon.





# CHRISTMAS TREE

one clear, cold Christmas night around 1550. To the delight of his children, he brought home a small tree and covered it with small lighted candles to simulate the sparkling snow he had seen in the forest.

Others who have carried out research, credit the Scandinavians with originating the Christmas tree. They say the custom dates back to the early Christmas practice of erecting poles and hanging sheaves of grain as a gift to the birds.

There are those who claim also that the Christmas tree, as a religious symbol, predates the birth of Christ by some 5000 years. Certainly, there is plenty of evidence to support the belief that the ancients followed the custom of decorating their houses with green boughs as an acknowledgement of the natural bond with the gods of woodland and grove. Most pagan peoples, too, worshipped the sun as a god.

The Romans honored Saturn, the god of agriculture, at this season, raising aloft boughs of evergreens and laurel. Winter rites of the Greeks and Scandinavians included reverence for the evergreen fir, while in Druid lore, the green boughs and mistletoe symbolized eternal life. In Norse mythology, the revival of Balder, the beloved sun god, was signified by evergreens.

As early as 1444, the English decorated the streets, churches and houses in London with oak, ivy, laurel and evergreens to celebrate Christmas. Early documents also recall a "standard of tree, being set up in the midst of pavement, nailed full of holme and ivie, for disport at Christmas."

An authentic manuscript mentions that around 1604 Christmas trees were used in the homes of Strasbourg in Germany, but the custom of using trees in France and England at Christmastime was not common until around 1840. To please her husband, the Prince Consort, Queen Victoria commanded that a pine tree be brought into the palace at Christmas and decorated as it had been at his home in Germany.

And so, granting that its use may even be pagan in origin, the evergreen tree has become a radiant symbol of our modern Christmas. Within a few days, another Christmastide will have rolled around when thousands of Canadians and peoples of other lands turn aside from the world's busy round to present gifts to their friends and loved ones from the fragrant and bedecked branches of the Christmas tree!





# SEVEN-LEAGUE STRIDES

Baden, birthplace of Sir Adam Beck, typical of many provincial towns and villages and the amazing progress they have made since the "Father of Hydro" introduced "low-cost power in abundance" to Ontario

by ALLAN A. JONES

**B**ADEN resident Noah M. Steinman disappeared for a moment into a small office on one side of his shop. He returned holding what looked like a faded old parchment.

"This," he explained, "is a map showing the layout of Baden as it was when the village was first founded by Jacob Beck close to 100 years ago."

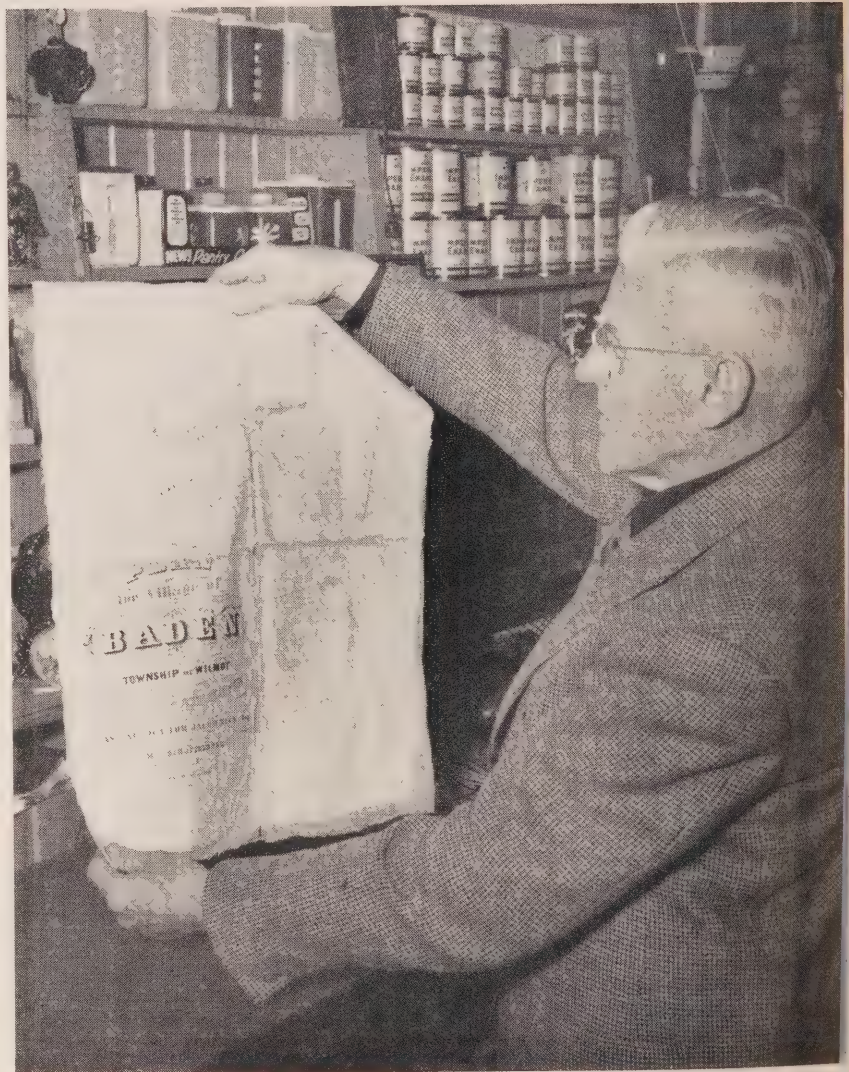
In the silent eloquence of print and line, the faded yellow document, dated 1856, revealed an interesting aspect of Ontario Hydro history. In one corner of the village "plan" was written in bold, black letters "RESIDENCE OF JACOB BECK, ESQ." This was the house which, one year later, in 1857, became the birthplace of the man now known as the "Father of Hydro"—Sir Adam Beck.

When Ontario Hydro crews changed over the home recently from 25 to 60-cycle power as part of the standardization program in the village of Baden, located in lovely hill-country just west of Kitchener, there was little about the house to indicate either its age or its heritage.

## Now Modern Farm

Now occupied by Harold J. Schmidt, the neat yellow-brick house has been considerably rebuilt, and transformed into a modern farm home. The only outward indication that it was once the home of Sir Adam Beck is in the name the farm has been given—"Beckdale" appearing in large white letters on the red barn.

Like an ever-growing number of Ontario farms, "Beckdale" is up-to-date in its use of Hydro power. When Adam Beck was born here a century ago, electric service was unknown.



BADEN RESIDENT Noah Steinman, who has other mementos of the famous Beck family, displays a map of Baden which was drawn up in 1856 for Sir Adam Beck's father, Jacob.





**SIR ADAM BECK'S birthplace**—this is the Baden farm, with the house at right, where the man now known as the "Father of Hydro" was born in 1857. Hydro crews recently carried out 25 to 60-cycle changeover at the farm, which is now occupied by Harold J. Schmidt and his family.

Today, in a way which perhaps even Hydro's far-sighted first Chairman could hardly have foreseen, almost every phase of activity at "Beckdale" depends to some extent on the use of electric power. Mr. Schmidt's cows are milked electrically. Feed for his pigs is ground for them in an electric grain grinder. The milk is kept cool for market in a special electric "ice-box." Farm chicks are hatched in an electric brooder. A fanning mill removes weed seeds from grain, and an electric agitator and water pump supply other electric services.

All of these items in the barn were frequency-sensitive and had to be changed over for operation on 60-cycle power. In the home itself there were more items to be altered—a refrigerator, a washing machine, and a water pump. But, in addition to the frequency-sensitive equipment, the Schmidts have such electric servants as lights, radios (Mr. Schmidt even has one in the barn) a sewing

machine, stove, sweeper, waxer and polisher, water heater, iron, electric heating pad, razor, toaster, and mixer.

#### **Baden Progress**

A closer look at the old map of Baden reveals how much not only the Beck homestead, but the entire village, has changed and grown over a century. The map is a mirror, not alone of Ontario Hydro history, but of the history of an Ontario village, and, indirectly, of a nation.

In 1856, for instance, there was no more than a handful of buildings in Baden. There was, of course, the Beck homestead, and nearby the foundry, built by Jacob Beck, in which the young Adam worked for a time. Some of the other few buildings shown on the map have only to be named to illuminate the progress that has been made. One was marked "Tavern"; another "Carriage Factory"; still another "Blacksmith Shop."

These, with the Beck foundry, were the sole industries and commercial enterprises of Baden a century ago. There were fewer than half a dozen homes.

A glance at Ontario Hydro's recent 60-cycle standardization schedule for Baden tells how much the village has changed and expanded since that time. "Operation Changeover" had to be carried out for 208 domestic customers, for 38 different commercial establishments, and for four industrial customers, including a large flour mill—now backbone of Baden's economy—and a cheese factory famous throughout Canada for the kind and quality of its cheeses.

#### **Great Power Users**

These customers, like "Beckdale" farm, make abundant use of Hydro power. Hydro changeover technicians converted 1,090 appliances and other items for the domestic users, 313 electrical items for commercial premises, and 386 motors

*(Continued on page 20)*



## SEVEN-LEAGUE STRIDES

(Continued from page 19)

and other pieces of equipment for the village industries, including 349 items in the flour mill alone. Like Mr. and Mrs. Schmidt, too, Baden residents are served by many other kinds of electrical equipment that do not require change-over. Electrically, the village has taken seven-league strides since the days of the tavern, and the blacksmith shop, when work was done by the flickering lights of a candle or a kerosene lamp.

Knowledge about, and use of electric power, seems in fact to come naturally to residents of Baden. Local electrical "wizard" Ken Gingerich, for example, had an amazing total of 64 items in his bungalow home which had to be switched over to 60-cycle power. These included a unique device which enables him (with the aid of his wife) to open his garage door while he is still out on the roadway approaching the house.

That the village where he was born should have become a "Hydro" community in the fullest sense, is a fitting tribute to Sir Adam Beck, the man who was chiefly instrumental in the founding and early development of what is today one of the world's greatest public utilities.



▲ LIKE MOST Ontario farmers, Mr. Schmidt makes extensive use of electricity, and Hydro crews had to changeover 10 frequency-sensitive electrical items on the premises. Here technicians carry in a new 60-cycle replacement unit for a refrigerator, while Mr. Schmidt looks on.



▲ MR. SCHMIDT has transformed the famous Beck homestead—built by Sir Adam's father, Jacob Beck—into a modern, fully "electrical" home, Hydro standardization crews discovered.





WHILE Sir Adam Beck had no electricity to help him during his early years in Baden, the present occupant of the old Beck homestead has many electrical servants. Here Mr. Schmidt watches a Hydro changeover technician making final adjustments on a grain grinder converted for 60-cycle power.



SIR ADAM'S mother did the washing by hand. Today, electricity takes care of this and many other chores in the former Beck home. Mrs. Schmidt is an interested onlooker as Hydro technician changes over her washing machine from 25 to 60-cycle power during "cutover"



BADEN is famous not only as the birthplace of Sir Adam Beck, but for its cheese factory, said to be the biggest producer of "limburger" cheese in Canada. Here Willard Gingerich, a worker in the factory, checks altered churn.



THIS BADEN oil street lamp was used for many years before Sir Adam's Hydro power made it obsolete. The lamp is now part of an interesting collection of relics and antiques owned by John Weppler of Moorefield, Ont.



# IRON BRIDGE INAUGURAL

## Another Northern Ontario Community Welcomed into Growing Hydro "Circle"

**S**ITE of a pioneer Hudson Bay trading post, the picturesque village of Iron Bridge, near Thessalon, was officially welcomed into Ontario Hydro's expanding system by Chairman Robert H. Saunders on November 6.

Speaking over a Northern Ontario network of radio stations from Iron Bridge, Mr. Saunders also announced that construction of Hydro's Manitou Falls Generating Station on the English River would be undertaken at an early date to meet extensive load growth in Northwestern Ontario during the next six years. The new station, to be built at a total cost of \$17,505,600 (including associated facilities), will have an in-

stalled capacity of 46,200 horsepower, and will be ready for initial operation early in 1956.

While no major source of new generation is presently contemplated in Northeastern Ontario, he said that Hydro now has underway the construction of a second interconnecting line between the Northeastern Division and the Southern Ontario System. The new line is scheduled for operation by the fall of 1954 and will take care of future load requirements in Northeastern Ontario. The first interconnecting line was placed in service in October, 1950. The two lines, with a transmission capacity of 80,000 horsepower each, will thus place at the dis-

posal of the Northeastern Division power resources equivalent to a 160,000-horsepower generating station.

Referring to the transfer of power between the Northeastern and Southern Ontario Systems, Mr. Saunders emphasized that both systems are separate financial entities and that any power purchased from the south is charged to the Northeastern Division at an energy rate equal to the pooled cost of generating power in Southern Ontario, omitting any assessment for frequency standardization.

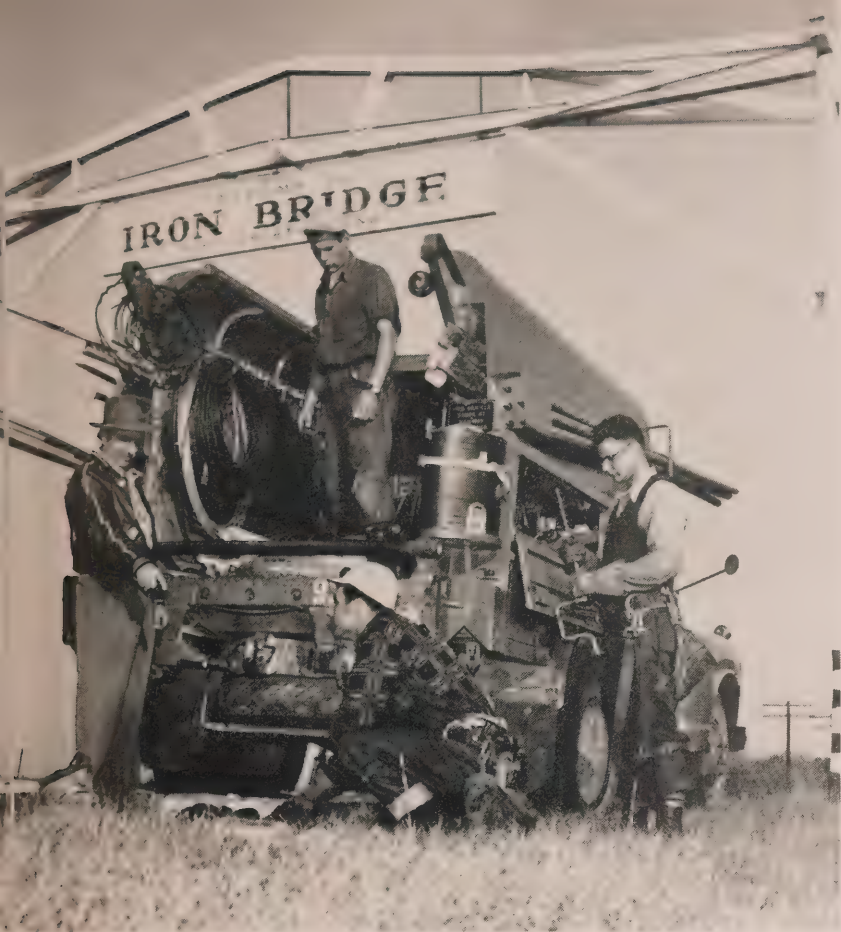
"This arrangement constitutes an outside purchase of power in the same man-

**KEYNOTE** of "Hyro Day" in Iron Bridge on November 6 was Ontario Hydro Chairman Robert H. Saunders' official welcome to the community's entry into the Hydro family. Mr. Saunders also took the occasion to broadcast a message to all sections of Northeastern and Northwestern Ontario. Among the many officials present at the ceremonies were those pictured here, left to right: H. R. Graham, Manager, Hydro's Northeastern Region; John A. Fullerton, M.P.P. for

Algoma—Manitoulin; Clarence Eaket, Secretary-Treasurer of the Iron Bridge Electrical Company; Chairman Robert H. Saunders at the microphone; P. R. McAdam, Manager of Sudbury Rural Operating Area; Mrs. L. Eagle, Iron Bridge, who later thanked Mr. Saunders on behalf of the community; James Anderson and Ervin Tulloch, Vice-President and President, respectively, Iron Bridge Electrical Company.







ONTARIO HYDRO line crews were busy during the weeks prior to Iron Bridge officially receiving Ontario Hydro power readying distribution lines to transmit the power to this growing community from Ontario Hydro's George W. Rayner Generating Station.

action to save the village from a power cut-off. Immediately, therefore, negotiations, personally handled by Mr. Saunders, between Ontario Hydro and the Iron Bridge Electrical Company were started. Arrangements for Hydro to purchase the distribution system of the Iron Bridge Electrical Company were completed rapidly.

### New Line

A key feature of the new arrangement by which Iron Bridge now benefits from the dependability of abundant supplies of low-cost power from Hydro's vast network of resources, was the construction of a 26-mile long transmission line between Iron Bridge and Hydro's 63,000 horsepower George W. Rayner Generating Station on the Mississagi River—one of 13 new power sources placed in service in the past eight years by Hydro to meet the spectacular increase in the use of electricity throughout the province.

In introducing the Hydro Chairman, Clarence Eaket, Secretary-Treasurer of the Iron Bridge Electrical Company, paid tribute to the Hydro line crews "who worked, both day and night, to rush this line through ahead of schedule" when it became known that the power supplies from the Deagle plant at Blind River would be cut off earlier than had been expected. First Hydro power actually reached Iron Bridge in the evening of October 28.

"By means of this new line," said Mr. Saunders, "it is our hope that, in addition to the 130 customers now being served in Iron Bridge, a further 53 rural customers will be added to our system before too long. We are also studying plans for a new line running in a south-westerly direction from Iron Bridge which will serve some 86 new customers in our Algoma Rural Area."

Adding their congratulations and voicing their welcome to Iron Bridge citizens were H. R. Graham, North Bay, Manager of Hydro's Northeastern Region; Ervin Tulloch and James Anderson, representing the Iron Bridge Electrical Company, and J. A. Fullerton, M.P.P. The vote of thanks to Mr. Saunders was extended by Mrs. L. Eagle.—by Denis A. Heeney.

### Citizens Celebrate

To mark the beginning of a new chapter in their history, the 300 or more citizens of the village enthusiastically participated in a day-long celebration. The program included Hydro films for the school children, and a cooking school for the ladies, conducted by Hydro's home economist, Anne Allan.

Climaxing the event was a fully-attended gathering in the local community hall. As guest speaker, Mr. Saunders, in extending a warm welcome to Iron Bridge, which will be served as part of the recently-formed Algoma Rural Operating Area, paid tribute to both Hon. Lester B. Pearson, M.P., Algoma East, and Canada's Secretary of State for External Affairs, and to John A. Fullerton, M.P.P., Algoma-Manitoulin, for "doing all that was possible to ensure that the citizens of Iron Bridge were not without power."

The Chairman stated that Mr. Pearson had brought to his attention early this summer, the urgent need for speedy

er as if the Northeastern Division purchased from any other supplier, and has the great advantage of postponing the immediate need of building new generating facilities in the northeast section of Ontario, with the subsequent high capital costs and carrying costs," he added. He said the Northwestern Division will eventually be included in this tremendous grid, emphasizing the important bearing which developments in Southern Ontario have upon Northern Ontario.

Typical of the expansion of Commission power facilities in Ontario's vast and teeming northland was the advent of Hydro service at Iron Bridge.

Situated on Highway No. 17, in the heart of one of Canada's great pulp and paper areas, the village derived its name from an iron bridge which spans the nearby Mississagi River. No longer used for vehicular traffic, this bridge was built in 1886 and was one of the first of its type in the northland. It stands, today, as something of a monument to the hardy pioneers who first settled in the community.



# FOTO-NEWS



**MOVING CLOSER**—With a definite start on the St. Lawrence Seaway and Power Project expected in the not-too-distant future, Ontario Hydro and New York State Power Authority representatives are currently holding a series of discussions relative to the power phase of the great development. Standing on the American "shore" of one of Ontario Hydro's models of the St. Lawrence Power Project, Commission and New York State Power Authority officials and engineers posed behind map of one section of the development during a recent conference. Left to right: Hickman Powell, Trustee of the Power Authority; Franklin J. Leerburger, Dr. Constantine Belousow, Richard Hazen, consulting engineers with the Power Authority; D. G. Harkness and E. T. Ireson of Hydro's Generation Department; Hon. George H. Challies, First Vice-Chairman, Ontario Hydro; J. R. Montague, Director of Engineering, and Assistant General Manager—Engineering, Dr. Otto Holden.



**"LIVE" WASHING**— Marking the first time in Ontario that "live" insulators have been washed, a major cleaning operation was carried out in the Windsor district recently by line crews of Ontario Hydro's Windsor Operating Area. During the past summer and early fall, insulators in west Essex County became coated with dust and dirt, including carbon particles from smoke. Normally, periodic rains keep the insulators free of these deposits but extremely dry weather this year left the insulators in the district with a heavy covering of carbon. Carbon is a conductor, and when a fog occurred a few weeks ago several poles caught fire and service was interrupted. In the accompanying photo, Hydro lineman Edward Sylvain uses a high-pressure hose equipped with a special nozzle, capable of 250 lbs. pressure per square inch, to wash down insulators on a 28,000-volt line. Because water is an excellent conductor, special precautions were taken, including grounding of the pump nozzle and the specially-adapted ladder truck. No one was permitted to touch the truck while the washing was in progress. Veteran Hydro linemen in the Western Region say the coating on insulators, until recent heavy rains, was the worst they had ever experienced.



# VETERAN SPAN

Last of Ontario's Covered Bridges, One of Hydro's  
Newest and Most Unique 60-Cycle Customers

ONTARIO Hydro recently made the 25 to 60-cycle switch for one of its most unique Southern Ontario customers—the province's sole, remaining wooden-covered bridge.

Spanning the Grand River at West Montrose, about 10 miles northeast of Kitchener, the bridge is operated by the Ontario Department of Highways.

"Operation Changeover" for the old wooden structure involved an automatic, electrical timing device for operation of the interior lights on the bridge. When it was built 72 years ago, its use was confined mainly to pedestrian and horse-drawn daylight traffic, and lights were not so necessary. Today, however, the lights are a "must" for the steady volume of cars and trucks which roll day and night across the veteran wooden span. The altered timing device switches the lights off in the morning, and on at night, being regulated periodically to conform with the seasons.

Other provinces, like Quebec and New Brunswick, have many covered bridges still in use, but the one at West Montrose is the last of its type in Ontario. Quebec and New Brunswick each have more than 300, and New Brunswick is said to have the longest in the world, a

1,282-foot span crossing the St. John River at Hartland. The Ontario bridge is 196 feet long.

Only two other provinces can claim covered bridges—Nova Scotia, which has two, and British Columbia, with one.

Hydro 60-cycle changeover at the West Montrose span recalled another—and much more difficult—Southern Ontario bridge conversion. This was the changeover of the big electric sign atop the Windsor-Detroit "Ambassador" Bridge.

To alter transformers on this modern steel structure, Hydro changeover crews had to make their way right to the top—more than 500 feet above the Detroit River. Working among open girders at a height actually greater than Toronto's Bank of Commerce required nerve, initiative, and technical skill on the part of the Hydro technicians.—By Allan A. Jones.



HYDRO technicians alter the automatic timing device on the 72-year old bridge for 60-cycle power. This piece of equipment operates the interior lights on the bridge.



LAST covered bridge in Ontario, the 196-foot structure, spans the Grand River at West Montrose. Provinces of Quebec and New Brunswick still have many covered bridges.



## NAME NEW DEPUTY GENERAL COUNSEL



LEAMINGTON DISTRICT MEMORIAL HOSPITAL.

## LIFE LINE

Emergency Operation Successfully Performed  
at Leamington With Aid of Ontario Hydro  
Frequency Changer Set

ONTARIO Hydro's Frequency Standardization Area office at Windsor received an important telephone call a few days ago.

The caller was Dr. Frederick Schreiber, a Detroit brain specialist, seeking Hydro's aid in saving a man's life. Dr. Schreiber explained that he and his colleague, Dr. Philip J. Huber, were to perform an emergency operation the following morning at Leamington District Memorial Hospital. He added that a preliminary operation had been performed on the patient, an 18-year old youth injured in an automobile accident, and his life hung in the balance.

Could Hydro provide temporary 60-cycle power at 110/220 volts, single phase to operate the coagulating machine designed for 60-cycle use only? Leamington Hospital is supplied with 25-cycle power, the town being scheduled for frequency changeover in the spring of 1954.

Hydro could. Instructions were given

that a 4.5-kilowatt frequency changer set be rushed to Leamington immediately. A brief telephone call to Everett M. Smith, hospital secretary-treasurer, provided the Hydro crew with the required information about the best location for the frequency changer set in relation to the operating room, and also the electrical to which the set could be connected. Arrangements were completed to have the hospital electrician and a Hydro technician stand by until the operation was completed in case adjustments to the frequency changer were necessary.

The story had a happy ending!

A letter from Dr. Schreiber to Hydro's standardization office in Windsor stated: "I want to thank you for the wonderful co-operation you showed in getting us a converter so that we could use our coagulating machine in Leamington the other day. The patient is doing very well, thanks to your assistance."—by Frank Wood.

DEPUTY Minister to Prime Minister Leslie M. Frost and Secretary of the Cabinet, Col. Lorne R. McDonald O.B.E., Q.C., has been appointed Deputy General Counsel of Ontario Hydro.

Making this announcement recently Premier Frost said Col. McDonald would assume his new duties effective December 1.

A specialist in corporation law, Col. McDonald became Assistant to the Provincial Secretary in 1946, after practising law at Windsor. He was made Cabinet Secretary in 1948.

At present on the reserve of active officers, he served in the United Kingdom, the central Mediterranean area, and northwest Europe during World War II, rising from lieutenant to a full colonelcy.

Born at Hamilton in 1902, he received his primary and secondary education in Regina, graduating from the University of Toronto and Osgoode Hall. He was called to the Bar of Ontario in 1927.

Prior to his entry into the Ontario Government service, he specialized in company and corporation law with the firm of McTague, Clark and Racine in Windsor until 1935 when he opened a private law practice in which he was engaged until 1939 when he joined the Essex Scottish Regiment. In 1945 he was awarded the Order of the British Empire for distinguished Military service, and in 1948 was created a King's Counsel.

Active in many fields, he holds memberships in the Law Society of Upper Canada; Inner Temple (London, England); Lawyers' Club of Toronto; County of York Law Association; Canadian Law (Fort York Branch); St. Andrew's Society of Toronto; Institute of Public Administration of Canada; Phi Delta Phi Fraternity; Canadian Order of Foresters (member of Executive Committee); the University Club of Toronto; the Leamington and Racquet Club of Toronto; and the Royal Canadian Military Institute. Married in 1929, he has one son and two daughters.



by EDITHEMMA DIGHTON

Hydro Home Economist



*Christmas* comes but once a year and here it is again! Soon there'll be a mad and merry scramble to rearrange furniture, put the finishing touches on the tree, and make the last-minute dishes. However, sharing the preparations of Christmas is half the fun.

*Tweezers* are just the thing for removing those last, stubborn pin feathers from the Christmas turkey.

*Render* out the extra turkey fat and use in place of other fats in the stuffing.

*Colored, almond paste* in the shape of miniature apples, lemons, oranges may be served with fruit cake. You may use plain almond paste for apples. Stripe with a toothpick dipped in red coloring, with a toothpick serving as a stem. Use yellow and orange coloring for the lemons and oranges which may be shaped and rolled on a grater. These imitation fruits should be about one inch in diameter.

*If there is no warming oven* on your electric range bring out the big dishpan. Pour boiling water into the pan to keep mashed potatoes and pudding sauce hot until serving time.

*Colorful, tasty vegetable combinations* to serve with turkey are either buttered sprouts and Harvard beets, or buttered carrots and creamed peas—along with fried potatoes or mashed sweet potatoes.

*To glaze roast fowl*, beat one-half cup of port currant jelly with a fork and spread over fowl during the last half-hour of roasting. It gives a professional-looking golden and wonderful flavor to the skin.

*Before icing a cake* on the sides dust a little cornstarch over it and the icing will not run off.

*Chocolate icing* will have a rich dark color if you add a drop or two of red coloring.

*Keep boiled icing soft* by adding a teaspoon of vinegar when you measure in the flavoring. The icing will not break when cut.

*Put a little grated horseradish* on the top of the opened jar of pickles to keep a film of mold from forming.

## Christmas Gingerbread

- 1 cup shortening
- $\frac{3}{4}$  cup sugar
- 1 cup molasses
- $\frac{1}{3}$  cup milk
- 5 cups sifted flour
- $1\frac{1}{4}$  tsps. salt
- 2 tsps. ginger
- 2 tsps. cinnamon
- $\frac{1}{4}$  tsp. cloves
- 1 tsp. baking soda

Cream shortening and sugar. Stir in molasses and milk. Mix and sift flour, salt, spices and baking soda. Blend into molasses mixture. Chill one hour. Roll out  $\frac{1}{4}$  inch thick on lightly floured board. Cut with Christmas cutters. Bake in electric oven of 375 degrees, 12 to 15 minutes. Cool. Decorate with butter icing, candy shot, etc. Makes about 30.

*Overwhipped cream* can be made smooth again by adding a little cold milk to it. Stir lightly.

*Keep doughnuts* from drying out by storing in a plastic box with a wedge of orange along with them. Cover tightly.

*To make whipping cream* go farther, add the white of one egg for each cup of cream. Whip eggs and cream separately then carefully fold together.

*If honey* becomes sugary from standing, heat in a double boiler. Use  $\frac{1}{2}$  cup of soft water to every 2 cups of honey. When honey has returned to amber liquid store in a clean jar and cover tightly.

*Make a roll* of leftover mashed potatoes, using wax paper. Store in the electric refrigerator and slice off potato cakes for frying when desired.

*To use leftover pancakes*, cut in small cubes and heat in skillet. Serve crisp bits with bacon.

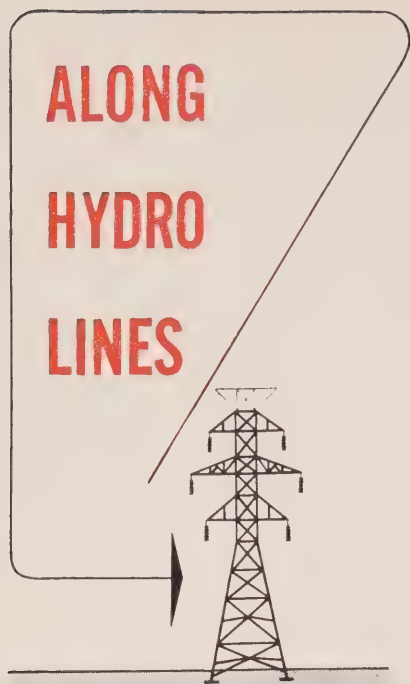
*If the paper sticks* to packages of raisins or dates, place the package in a pan and heat in warm oven for a few minutes. It will come off easily.

*Rub a little glycerine* on top of bottles containing such condiments as catsup, chili sauce or chutney. This prevents rust on caps.

*To remove* a bit of egg yolk accidentally dropped into "whites" use the corner of a clean wet cloth. The yolk will stick to cloth.



## Effect Important Changeover Economies



### **\$600,000 Needed By Brantford P.U.C.**

AUTHORIZATION for debentures in the amount of \$500,000 for the Hydro Department of Brantford Public Utilities Commission was requested of City Council here recently. A further \$100,000 is required for the Waterworks Department.

The half-million dollars for the Hydro Department will be spent in the rebuilding of the Hydro distribution system, distribution transformers, rewinding sub-station transformers, meters, a new garage, and alterations to the building now used by the Brantford Commission on Murray Street.

### **\$61,000 Profit Shown By St. Thomas P.U.C.**

FROM the first of the year until the end of September, the Hydro Department of St. Thomas Public Utilities Commission showed a net operating profit of \$61,602.88. This compares with a net profit of \$34,926.97 for the same period in 1952. Total revenue of the local commission in the first nine months of 1953 was \$459,479.97, and expenditures amounted to \$397,877.09. The report showed an increase of 123 domestic users, 14 commercial users, and two industrial over twelve months.

ONTARIO HYDRO has entered into agreements with two more companies—Kelvinator of Canada, Limited, and Frigidaire Products of Canada, Limited—concerning the manufacture of refrigerators operable at either 25 or 60-cycle frequency.

These agreements follow many months of research and experiment by these companies to produce this special equipment. These researches were aided by data provided by Ontario Hydro's Frequency Standardization Engineering Department, which in 1952 produced a prototype model of a dual frequency refrigerator unit.

After deduction of development expenses and allowance to the manufacturers of the small extra cost of producing these special units, resulting net economies to the Commission during the first year of manufacture are expected to exceed \$3,440,000 as Ontario Hydro will not have to change over these units for 60 cycle at a later date.

Three electrical manufacturers will now be making these new type units, the Canadian Westinghouse Co. having placed theirs on the market earlier in the year. The appliances require only a minor adjustment when changeover time arrives, and will effect a saving of about 83 percent in the cost of standardizing a refrigerator.

These agreements result from decisions made by Ontario Hydro in 1949 to prevent, as far as possible, the appearance on the market of equipment which could be operated only at 25 cycles. Fine co-operation from many electrical manufacturers has led to the development and sale of other dual frequency equipment, including oil burners and controls, fluorescent ballasts, industrial motors, transformers and sundry items. Total economies of \$17,000,000 are anticipated through the use of dual frequency equipment.

New procedures, applied to the conversion of household meters, will effect other savings estimated at \$3,500,000, while the rewinding of 25-cycle motors for use at 60 cycles, and the re-working of such items as oil burner controls and other miscellaneous equipment is expected to add up to further economies of \$9,000,000.

Still another important saving is being effected through what is known as Hydro's "on loan" program. Under this arrangement 25-cycle motors are made

available on loan to a new industry one which is expanding in a 25-cycle area. When changeover time arrives, the industry installs 60-cycle motors and returns the 25-cycle motors to Hydro. The economy under this heading is estimated at \$1,700,000.

Up to the present time calculations indicate that economies on the overhauling program will be at least \$25 million and will probably be in excess of \$30 million.

Chairman Robert H. Saunders, commenting on these important savings recently, said there would be no relaxation in Hydro's efforts to find still further means of effecting economies in changeover costs. He pointed out the overall cost of changeover will be substantial higher and may reach 2¼ times the estimated cost of the original program. This is due to the rise in the number of customers estimated to be affected from 784,000 to 904,000, and an increase in the average number of frequency sensitive items per home from an estimated 2.7 in 1947 to approximately four today. This increased saturation and greater number will mean that for domestic customers alone it will be necessary to standardize some 1,293,000 appliances above the total scheduled in the original program.

Other factors are Ontario's tremendous industrial and commercial expansion which has resulted in the installation of a substantial additional amount of electrical equipment, and the increase of 84.9 percent in labor costs, and 51.4 percent in the costs of materials.

Two big apartment buildings in the Forest Hill Village section of the Toronto Metropolitan area were supplied with 60-cycle power recently in advance of a general village changeover, scheduled for March, 1954. As a result Ontario Hydro will make a saving of approximately \$8,500. This move made it possible to install a large number of new refrigerators and oil burners in the buildings at 60 instead of 25 cycles, and to save Hydro the much heavier cost of conversion than would otherwise be required.

At the same time frequency standardization crews made the cycle switch at eight nearby private homes. These homes had to be changed over to 60-cycle power because they are supplied from the same power line as the apartments, which are located at 800 and 840 Eglinton Avenue West.



## New "Joint Use of Poles" Specification Available

W. R. McCaffrey, General Manager, Canadian Standards Association, recently announced publication of CSA Specification C22.3 No. 1 (D)—Rules, Requirements and Specifications for Joint Use of Poles to support Supply and Communication Circuits. The first edition of this Specification is intended to meet the need for a Canadian Code of good practice covering the joint construction of supply and communication lines. It is felt that availability and use of this code of practice will, through elimination of structural and inductive interference hazards, contribute effectively to the successful operation of the power and communication industries, and through increased safety be of resultant benefit to the public at large.

## Scottish Generating Plant To Burn Surplus Peat

A power plant, designed to burn peat instead of oil or coal, will be built in Scotland, it was announced recently in the British House of Commons. The Government has decided on this experiment to make use of some 600,000,000 tons of peat in Scotland, mostly in the Highlands.

## Napanee Appoints New Commissioner

NAPANEE Town Council has appointed A. E. Holmes to the Napanee Public Utilities Commission. Mr. Holmes will complete the unexpired term of the late Dr. D. R. Hall, Chairman of the commission, who died recently.

## Two-Way Radio On P.U.C. Trucks

FOUR TRUCKS of the Stratford Public Utility Commission will be equipped with two-way radio, three of these being for the Electrical Department. The approximate cost is \$4,480, and it is expected the modern method of communication will cut "outage time" and speed repairs.

## Stayner Has New H.E.P.C. Office

A MODERN brick and frame building now houses the Ontario Hydro R.O.A. staff at Stayner. Erected at the corner of Mill and Gideon streets, the structure contains general offices, two private offices, washrooms, storerooms, and a full-size basement. The front, dressed in pleasing red brick and white siding has windows to the ceiling, and the offices are well-lighted and decorated.

## Commissioner Hutchings Dies At Port Hope

STRICKEN suddenly while helping take down decorations erected for the International Plowing Match, Howard G. Hutchings, a member of the Port Hope Hydro-Electric Commission, passed away on October 13. The funeral was widely-attended, and represented the esteem of this community for a highly-respected citizen, who had devoted his life to many causes in his native town.

Mr. Hutchings, who operated a grocery business, was elected a Hydro commissioner in January, 1949, after a term on the town council. He was interested in all matters affecting Hydro, and had attended the E.O.M.E.A. annual convention in September.

## Lighting Installed At Fort William

TWO SECTIONS of Fort William have had new lighting installed, it was announced recently by A. W. H. Taber, Manager of Fort William Hydro-Electric Commission. On International Highway 61, from the Westford Bridge over the Kam River to the intersection of Brock and Ford Streets, 100 new units are in operation. In a new housing sub-division 47 units have been completed. A new substation on North Vickers Street will be ready for operation by the end of the year.

## Brantford's Hydro Pioneer Dies

ANDREW MCFARLAND, 94, a member of Brantford's first Hydro commission, died recently. Mr. McFarland served on the Brantford Commission for 20 years, ten of these as Chairman. Because of his strong advocacy of Hydro during his three years as a member of the City Council in the early part of the century, he was often termed "father of Hydro," in Brantford.

Born near Belfast in County Tyrone, Ireland, he came to Brantford when he was 16.

He was interested in church work, serving on the Board of Managers and Session of Alexandra Presbyterian Church and later as an elder of Zion United Church. Mr. McFarland was active in lawn bowling and was an officer and member of the Heather Club in Brantford for many years.

Surviving are three daughters, as well as seven grandchildren. Mrs. McFarland predeceased her husband by three years.

## METERMEN'S COUNCIL

DRAWING up a schedule of fall meetings of district associations was the chief matter of business at the recent semi-annual meeting of the Council of Metermen's Associations of Ontario held at Ontario Hydro's Head Office in Toronto. Those present, as in the photo above, left to right, were: L. J. Pearce, St. Catharines P.U.C.; V. MacLachlan and Otto Reiber, Waterloo P.U.C.; Gordon Steiss, Kitchener P.U.C.; B. Upper and N. J. Lake, Ontario Hydro; G. E. McClymont, Chatham P.U.C.; I. Stitt, Morrisburg H.E.C.; Al. Christie, North York H.E.C.; C. E. McGuire, Ottawa H.E.C., and Earl Thornton, Ingersoll P.U.C.





**O**NTARIO Hydro has amended, by approximately three months, the tentatively-planned dates for changeover to 60-cycle frequency of Georgetown, Brampton, Acton, Milton, Campbellville, Streetsville and surrounding rural areas. This rearrangement of originally planned standardization periods for these municipalities has been dictated by the unusually rapid development in industry, commerce and home building around Waterdown and the Burlington Rural Operating Area. Frequency standardization will get underway next April for customers of all classes in Waterdown, the Burlington Rural Operating Area, and a section of the Dundas Rural Operating Area. Hydro crews have already moved in to begin the preliminary job of listing frequency-sensitive equipment owned by industrial customers.

The amended schedule for the affected section of Ontario Hydro's Standardization Area "L," is as follows: **GEORGETOWN HYDRO-ELECTRIC COMMISSION**—First two weeks of September, 1954; **BRAMPTON RURAL OPERATING AREA**—Glen Williams Distributing Station—Last two weeks in September, 1954; Brampton D.S.—Last week of November and first week of December, 1954; Milton D.S.—First two weeks of January, 1955; Streetsville D.S.—Last two weeks of January, 1955; **ACTON PUBLIC UTILITIES COMMISSION**—First two weeks of October, 1954; **BRAMPTON HYDRO-ELECTRIC COMMISSION**—Last two weeks October and first three weeks of November, 1954; **GUELPH RURAL OPERATING AREA** (Acton Distributing Station No. 1)—Second week of October, 1954; **MILTON HYDRO-ELECTRIC COMMISSION**—Second and third weeks of December, 1954; **CAMPBELLVILLE HYDRO SYSTEM**—Last week of December, 1954, and **STREETSVILLE PUBLIC UTILITIES COMMISSION** — Second week of January, 1955.

Tentative dates have now been scheduled for 60-cycle changeover of Guelph, Rockwood, Elora, Fergus and surrounding rural areas. These municipalities form part of Hydro's Standardization Area "L," comprising in all an 888 square-mile section in the counties of South Wellington, Halton and Peel.

The tentative schedule of changeover operations is as follows: **GUELPH**

**LIGHT & HEAT COMMISSION**—Last week in February, 1955, to third week of June, 1955; **ROCKWOOD HYDRO-ELECTRIC SYSTEM**—Last two weeks of June, 1955; **GUELPH RURAL OPERATING AREA** (Rockwood Distributing Station)—Last week of June, first week July, 1955; **ELORA HYDRO-ELECTRIC COMMISSION** — Second week of July, 1955; **ELMIRA RURAL OPERATING AREA** (Elora Distributing Station No. 2)—Last two weeks of July and third week of August, 1955; **FERGUS PUBLIC UTILITIES COMMISSION**—Last two weeks of August, first week of September, 1955, and **GUELPH RURAL OPERATING AREA** (Guelph Distributing Station and Rural Station)—Month of September, 1955.

Changeover operations were started in Elmira on November 19 and were scheduled for completion early in December. Ontario Hydro crews moved into the Town of Essex on November 18 to commence taking inventories of the frequency-sensitive appliances owned by 875 domestic and 175 commercial customers served by the Essex Public Utilities Commission.

Inventories of frequency-sensitive appliances owned by 2,215 domestic and 430 commercial customers served by the Leamington Public Utilities Commission have been completed. Inventories were made previously of the frequency-sensitive equipment of the 55 power customers in Leamington.

Although start of 25 to 60-cycle changeover for the area is still approximately a year away, Ontario Hydro crews have completed the work of listing all frequency-sensitive electrical equipment for industrial plants in the Preston, Hespeler, and Galt district.

It is expected that more than 2,400 new homes in Hamilton and district will get 60-cycle service in advance of Ontario Hydro's general 25 to 60-cycle changeover in the city, now scheduled for the late summer of 1954. Under the scheme now in force of picking up load growth wherever practical and economical at 60 rather than 25 cycles, arrangements have been completed or are under way to supply advance 60-cycle power to more than 10 new housing subdivisions projected in Hamilton and district, including the Dundas and Aldershot areas.

## Kitchener P.U.C. Reports Profit

**KITCHENER** Public Utilities Commission reports a profit in the electrical department during the past nine months of \$167,411.23. During September the profit was \$23,896.08.

The total number of customers whose equipment has been changed to 60 cycle in the local advanced frequency standardization program now stands at 5,147 with 312 of these being added during September. In addition, seven industrial power customers have changed to 60 cycle operation.

## Sarnia Institutes Five-Day Week

Sarnia Hydro-Electric Commission has decided to institute a five-day week following the adoption of a resolution at recent meeting to close the local commission offices on Saturday.

The commission believed that the trend was to close local places of business on Saturday and open Friday evening. The Hydro Shop is to remain open Friday evening from 6:00 P.M. to 9:00 P.M. The other utility offices in Sarnia now close all day Saturday together with the chartered banks.

The resolution was effective until March 31, 1954 when the local situation will again be reviewed at the same time that employee working agreements are negotiated.

## Extension Approved

A \$3,500 appropriation for extension to the electrical distribution system of St. Clair Beach Hydro-Electric Commission has been approved by Ontario Hydro, Chairman T. A. Cada announced recently. The extension will enable local commission to better meet expanding needs of the community.

## TV POWER

**S**UDBURY Hydro-Electric Commission is playing an important role in helping CKSO-TV bring television to the northern community. Four transformers, one 50-KVA and three 7½-KVA at 220 volts, feed the power into the new TV station. Power is distributed to various equipment in the station through basement controls.





## EAST YORK RETIREMENT PRESENTATION

**E**AST York Hydro-Electric Commission and the East York Hydro Employees' Association were co-sponsors of a successful social evening recently to mark the retirement of a veteran employee, Frank Dainty, who has given 26 years' outstanding service to the East York Commission. Held at Woodbine Heights Canadian Legion Memorial Hall, the event was highlighted by joint presentations to Mr. and Mrs. Dainty. Born in England, Mr. Dainty emigrated to United States in 1900 and later came to Toronto. A champion prizefighter in those days, he also was engaged in construction work, being associated with the laying of the first asphalt surface on the Queen City's Spadina Avenue. He served in various capacities with the Toronto Electric Light Company for 12 years, joining the staff of the East York Commission as a lineman in 1927. Later he became a meter tester, and was placed in charge of his work by the East York utility several years prior to his retirement.

In the photo on the left, above, Mr. Dainty is seated in the new easy chair presented to him by the Employees' Association, flanked by—front row, left to right, Secretary-Treasurer M. A. Gough, Reeve Harry Simpson, Mrs. Dainty who was presented with the bouquet by Mrs. Helen Beales, Secretary of the Employees' Association; Superintendent James Wickiam, and Commissioner Chas. Ellerbeck. Chairman Chas. Legge, and E. A. President Ross Rance are in the back row. The East York Commission presented Mr. Dainty with a set of pipes and are retaining him as a fully-paid member of the staff for a year after his retirement. Members of the East York Hydro Quarter-Century Club were on hand to wish Mr. Dainty health and happiness and posed for the photo, right. With service totalling 267 years, they are, front row, left to right—William Ferris, 25 years' service; Herbert Watson, 28; Mr. Dainty, 26; William Barker, 28; Richard Clark, 25, and Supt. James Wickiam, 28. Back row, left to right—Starling McCleary, 25; Joseph Hogg, 28; David Norman, 27; and Hubert Humphreys, 27.

## Barrie Commissioner Named Supreme Court Justice

**A**PPPOINTMENT of Charles Douglas Stewart, Q.C., distinguished Barrie lawyer, to the Bench of the Supreme Court of Ontario recently left a vacancy in the Barrie Public Utilities Commission. A member of the Barrie Commission for the past six years, Mr. Justice Stewart has been born in that Lake Simcoe town in 1905 and is the fourth-generation member of the Stewart family to practise law. Mr. Justice Stewart's great grandfather was one of the early Hudson Bay factors at Norway House. His great grandmother refused to remain in Scotland during the absence of her husband, and usually practised in those days. She travelled to Fort William by trading canoe with her daughter, Justice Stewart's grandmother, who for the first few years

of her life never saw a white person with the exception of her parents. His grandmother was married at the old Fort in Fort William to John Plummer, a mining engineer. The foregoing illustrates the thoroughly Canadian background of Ontario's newest Supreme Court Justice.

His paternal great grandfather was Attorney-General and Acting Governor of the Island of St. Vincent in the British West Indies. His grandfather came to Canada and was called to the Bar of Ontario in 1863. His grandfather, his father, and he have practised law in Barrie almost continuously since then until the present time. Incidentally, this law practice has been carried on in the same office building for the past 75 years.

Educated at Barrie Collegiate and Appleby College, Oakville, Mr. Justice Stewart graduated from Trinity College,

Toronto, with a Bachelor of Arts degree. Since returning to Barrie to conduct the family law practice, he has taken an active part in civic affairs, being an alderman in 1930-34; Deputy-Reeve in 1935 and Reeve in 1936 and 1937. In the latter year, he was elected Warden of Simcoe County. He also served on the board of the Royal Victoria Hospital and the Board of Education.

A member of the University of Toronto Club and the Phi Gamma Delta Fraternity, he is married with two sons and two daughters.

## District O.M.E.A. Meetings

Two district O.M.E.A. groups will hold their annual meetings during January. District 4 O.M.E.A. delegates will gather at the King Edward Hotel, Toronto, on January 28. The annual meeting of Districts 7 and 8 will be held at Windsor on January 29.





## HAS WALKED NEARLY 90,000 MILES

WHEN William Wright, veteran meter reader with the Fort William Hydro-Electric Commission, completed his last visit to Hydro customers in that Lakehead city recently, and returned to the office, he found members of the Fort William Commission waiting for him. On behalf of the commission, Chairman C. H. "Sandy" Moors presented the retiring employee with a paid-up life insurance policy and his first pension cheque. Voicing their tribute to his "quiet and dependable service," were, left to right, Manager A. W. H. Taber, Mayor Gordon Carson, Chairman Moors, presenting the cheque to Mr. Wright, centre, and Commissioner J. R. Pattison. Mr. Wright, who arrived in Fort William in 1911 from Scotland, believes he has walked 90,000 miles during his 32 years' service with the Fort William Commission—that's nearly four times around the world. A veteran of the first World War, he is the father of six children.

## Waterloo Rolls Up \$40,000 Profit

WATERLOO Public Utilities Commission reports a \$40,286.41 operating surplus for the first nine months of 1953. Of this amount, \$29,981.24 was earned by the commission's Electric Department. Superintendent Eby Rush reported 22 flat-rate water heater applications in October, to make this year's total thus far 185. The electric department also installed 32 new services in September, for a total of 188 to that date.

## SOME PUNK-INS!

HALLOWE'EN night "shenanigans" meant Monday headaches for the crews of the Stratford Public Utility Commission. Wide-spread damage to Hydro street lights was caused by those who seem to feel the night the witches ride gives them license to destroy public property. Favorite weapons used on the 45 broken street lamps appeared to be stones and air rifles.

## Classified Ads

### FOR SALE

3 - 250 kva 25 cycle single phase 27.6-13.2/2.3-4.0 kv O.I.S.C. substation transformers; in service 1942-1949; standing idle since 1949.

These transformers can be reconnected for 60 cycle 450 kva at 60 cycle with no voltage adjustment taps. They can also be rewound for 450 kva 60 cycle with 4-2½% H.V.F.C. taps below normal at a cost of \$2100. An attractive price will be given to anyone interested.

Apply Public Utilities Commission, Clinton, Ontario.

### FOR SALE

ONE Burroughs Billing Machine, Style 301700, 20 total, complete with universal type motor and bill holder. Machine in operating condition and excellent for service in small city or town. Further details available on request.

Apply Public Utilities Commission, Galt, Ontario.

## UNIFORMITY AND STRENGTH

(Continued from page 15)

A. W. Murdock, Hydro's Rates Study Engineer, explained the revisions which have been made in the Standard Interpretation of Rates booklet.

Bertram Merson, Chairman, Toronto Hydro, spoke as a member of the committee on the Municipal Hydro-Electric Pension and Insurance Plan.

Reviewing the progress of the plan since its inception in 1929, Mr. Merson revealed that only 144 municipalities were members despite the fact that many of these municipalities needed this protection.

Explaining the Pension Plan, Mr. Merson said, "Following the steady shrinkage in the value of the dollar, the committee met and approved the Supplemental Pension plan, which will provide for more adequate pensions for those retiring in the future. The Supplemental Plan also has provision for the setting up to a minimum pension to benefit those facing early retirement."

Wills MacLachlan, Engineer, Electric Employer's Association spoke on accident prevention.

Resolutions passed during the conference included:

1. Adoption of the standard constitution, on the recommendation of a committee headed by C. K. Merner, N. Hamburg.
2. Adoption of the principle of a cooperative fire insurance plan for member municipalities. The executive empowered to examine the plan in greater detail for a report at a later meeting.

Following dinner, the delegates at the Stratford Country Club saw a film "Brazil" illustrating the activities of Brazilian Traction, Light and Power Co. in Brazil. Speaker was M. G. Glasgow, General Executive Assistant of the above company.

Head table guests were: Dr. F. Barron, Paris; D. P. Cliff, Dundas; P. Herring, Sarnia; J. Fred Edwards, M.L.A., Perth; H. L. Banfill, Director, Brazilian Traction, Light & Power Co. Ltd.; Mayor Lawrence Feick, Stratford; A. J. Girdwood, Guelph; M. G. Glasgow, W. F. Nickel, Chairman, Stratford P.U.C.; Bertram Merson, Chairman, Toronto Hydro; A. B. Manson, General Manager, Stratford P.U.C.; and Lt. Col. A. A. F. Kennedy, Owen Sound.—by H. B. Wood





THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

ROBERT H. SAUNDERS, C.B.E., Q.C.  
CHAIRMAN

620 UNIVERSITY AVENUE  
TORONTO 2

December 15, 1953

TO THE READERS OF ONTARIO HYDRO NEWS:

As you are aware, it is my desire at all times, to make available full information on Hydro's operations, plans and developments. Through the medium of Ontario Hydro News, I wish to provide an additional opportunity to all readers interested in obtaining information on Hydro affairs.

I would be pleased to receive any queries you may wish to send along. Every effort will be made to provide the answer by mail or through the medium of the magazine, depending, of course, upon the volume of the inquiries.

It is my sincere hope that you will use the columns of this magazine for your questions. In many instances the questions and answers may have a very wide application, and undoubtedly will be of interest to all readers.

Yours very truly,

CHAIRMAN





song for the Old, while its knell is tolled.

And its parting moments fly!

a song and a cheer for the glad New Year.

While we watch the Old Year die!

! its grief and pain ne'er can come again.

And its care lies buried deep;

! what joy untold doth the New Year hold.

And what hopes within it sleep!

GEORGE COOPER, *The New Year*.

## JANUARY

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5	6	7	8	9
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19	20	21	22	23
26	27	28	29	30





ONTARIO HYDRO

*News*

JANUARY, 1954



# ONTARIO HYDRO

## News

JANUARY, 1954

Vol. 41,

No. 1

Published by

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

620 UNIVERSITY AVENUE, TORONTO



## CANADA'S BOUNDLESS ENERGY

AT THIS SEASON of the year, as we look forward to 1954, it is both refreshing and inspiring to pause for a moment to review the accomplishments of 1953.

It is encouraging to many associated with the power industry to note in a bulletin entitled "Hydro-Electric Progress in Canada, 1953," issued by the Canadian Department of Resources and Development, that Canada, during the past year, added 638,012 horsepower to the installed hydro-electric capacity of the country, bringing the total installed capacity of all hydraulic plants in Canada to 14,921,459 horsepower.

While the report deals chiefly with current waterpower developments, it also mentions other phases of construction concerned with power supply and distribution. In this category are thermal-electric stations, construction of which "proceeded vigorously" in 1953, the bulletin reports.

As examples of this progress in thermal-electric construction, the Department's report mentions the Commission's steam-electric Richard L. Hearn and J. Clark Keith Generating Stations in Toronto and Windsor respectively (the Hearn station being the largest in Canada, with the Keith station in second place), where installation of all four units of the first and second stages of both plants was completed in 1953.

Plants and extensions under construction for operation in 1954 total 1,500,000 horsepower, the bulletin states. Chief among these will be Ontario Hydro's largest hydraulic plant to date, the 1,828,000-horsepower Sir Adam Beck-Niagara Generating Station No. 2 where five units of 100,000 horsepower each are scheduled for service in 1954.

While Canada searches diligently, for additional sources of energy, such as natural gas and atomic reactors (the Commission is now engaged in a "feasibility" study in conjunction with Atomic Energy of Canada, Limited, in respect to the latter—see *Ontario Hydro News*, November-December, 1953), she is fortunate in the fact that she has, by no means, exhausted her hydro-electric resources, which are of resounding importance to her future development.

For as the Resources bulletin points out, "while many of the more attractive and convenient sites have already been developed, they represent less than 23 percent of the total waterpower resources of Canada. Continuing improvement in the technique of long-distance transmission has tended to make additional sites available for connection to existing systems."

For a more extended review of the Commission's activities in 1953 and its numerous contributions to the prosperity and development of Ontario, and hence Canada, the attention of the reader is directed to the article, "Pattern of Progress," on Page 2 of this issue.



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## CONTENTS

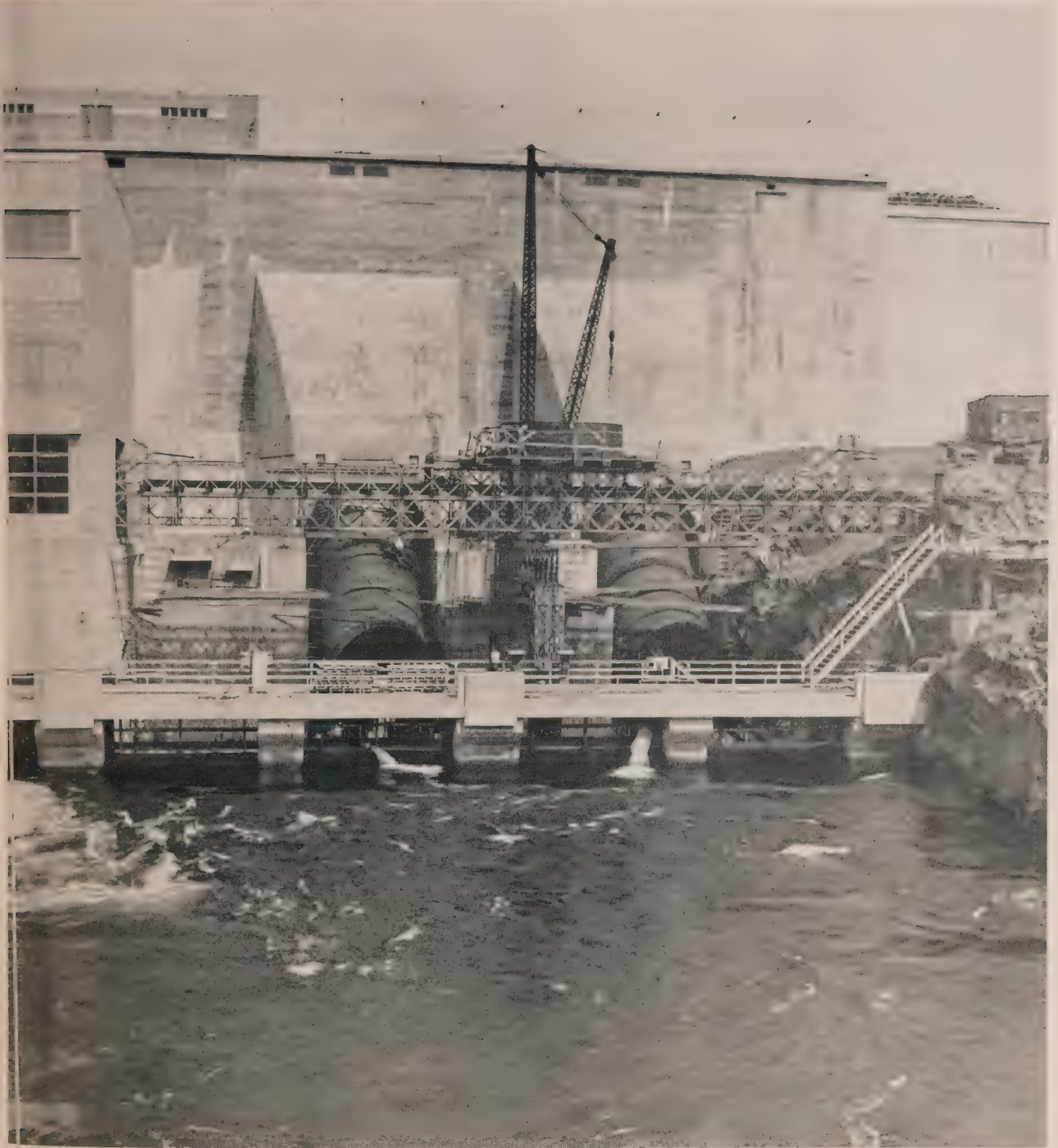
	Page
Pattern of Progress .....	1
International Partners .....	1
"Rodeo" Winner .....	1
"Playing it Safe" .....	1
Along Hydro Lines .....	1
Redsell Heads Metermen .....	2
New Power Hook-up .....	2
Ontario Hydro News Index — 1953 .....	2

## COVER SHOTS

HELICOPTERS have been brought into play by Ontario Hydro engineers in their surveys of the St. Lawrence River. This month's front cover shows one of these useful aircraft taking soundings in the International Rapids Section to obtain a profile of the river bed. A Hydro staff photographer recently recorded the view on the back cover showing a Toronto street wearing the latest in winter mantles.

Material published in *Ontario Hydro News* may be reprinted without permission. Most photographs are obtainable on request. If required, stereos will be provided.





*N*OWHERE in the province is the increased tempo of development and industrial activity more evident than in that rich section lying north of Lake Superior. During 1953 Ontario Hydro construction crews were busy at the Pine Portage Generating Station with the installation of two additional units to raise this Nipigon River plant's dependable peak capacity to 158,600 horsepower in four units. (For a review of further expansion of Commission facilities in Northwestern Ontario see "Pattern of Progress," Page 2 this issue.)



# 1953 IN RETROSPECT

## ***Ontario Hydro Reports Another Busy Year as Expansion Program Speeds Forward***



EIGHTH and final unit was installed at Otto Holden Generating Station, Ottawa River, giving plant dependable peak capacity of 282,000 horsepower.



FOURTH unit was completed at Richard L. Hearn Generating Station, Toronto, which will have installed capacity of 536,000 horsepower at 60 cycles.



THIRD and fourth units were completed at J. Clark Keith Generating Station, Windsor, raising its installed capacity at 60 cycles to 354,000 horsepower.

POWERHOUSE at Sir Adam Beck-Niagara Generating Station No. 2 where excellent progress was recorded in 1953. Official opening is scheduled for August this year.





# Pattern Of Progress

ONTARIO'S rising level of prosperity, large-scale expansion by industry, and increased farm output were impressively reflected in Hydro's province-wide efforts in 1953 to keep abreast of mounting power demands.

Regarded as a year of outstanding progress on all fronts, 1953 was significant, too, in a historical sense, as it was 50 years ago (on February 17, 1903) that the cornerstone of the great Hydro enterprise was laid at a meeting of public-spirited businessmen in Kitchener. Perhaps the most notable event of the past year was the recent announcement that Hydro engineers would carry out feasibility studies, in co-operation with Atomic Energy of Canada Ltd., on the future use

of atomic energy in power generation.

Continuing with the greatest expansion program in its history—initiated just eight days after V-J Day—Ontario Hydro has raised its dependable peak capacity to 4,779,000 horsepower—an 84 per cent increase over the 1945 figure. By December 31, 1956, Hydro will have increased that figure by over 144 per cent in an all-system expansion involving 15 new power sources—both hydraulic and fuel-electric.

Today, 13 of these projects are in service, with the first five units of the fourteenth, the Sir Adam Beck-Niagara Generating Station No. 2 development, being readied for operation this year, fol-

lowed by completion of the plant's first stage of 1,428,000 horsepower in early 1957. Scheduled for 1956 is Hydro's fifteenth and most recently authorized project, the Manitou Falls Generating Station on the English River in North western Ontario. This plant will have an installed capacity of 46,200 horsepower. Estimated to be in service in 1955 is a two-unit addition to the Pine Portage Generating Station which was announced in May, 1953, to serve the growing power needs of the North-western area. It will raise the plant's dependable peak capacity to 158,600 horsepower in four units.

Significant highlights of Hydro's 1953 operation also included: (1) major addi-

*(Continued on page 4)*





tions to transformer and distribution facilities; (2) installation of the eighth and final unit at Hydro's Otto Holden Generating Station on the Ottawa River, completed last April to give the plant a dependable peak capacity of 282,000 horsepower and completing Hydro's present development of the river where 951,000 horsepower has been harnessed since 1945; (3) completion of the third unit and the fourth unit at Hydro's J. Clark Keith Generating Station in Windsor, raising its installed capacity at 60 cycles to 354,000 horsepower; (4) completion of the fourth unit at Hydro's Richard L. Hearn Generating Station in Toronto, which will give the plant an installed capacity of 536,000 horsepower when all units are operating at 60 cycles; (5) authorization of a pumped storage reservoir and provision for four additional units as required at the Sir Adam Beck No. 2 project which will give the development an ultimate installed capacity of 1,828,000 horsepower; (6) two interconnections completed with the Detroit-Edison Company which will give further protection to the Hydro system; (7) signing of one of the most progressive agreements in Canadian labor history; (8) a remedial scheme to preserve and enhance the beauty of Niagara Falls and provide for more effective use of the river flow for power production; (9) important developments with respect to the St. Lawrence River Power Project, rural Hydro electrification and frequency standardization programs; (10) announcement of 'feasibility studies' to be carried out by Hydro in co-operation with Atomic Energy of Canada Ltd.

### Spotlight on Niagara Project

During the year the spotlight focused many times on developments at Hydro's Sir Adam Beck No. 2 project at Niagara Falls, Ontario. During 1953 the 2¼-mile open-cut canal was virtually completed, ready to carry water from the tunnels to the forebay, which was almost finished by the year's end. The twin 5½-mile tunnels, dug to a maximum depth of 330 feet under the city of Niagara Falls, in order to "bypass" the city, were far advanced. The three-foot thick concrete lining in Tunnel No. 1 was almost all in place, reducing its diameter from 51 feet in the rough excavated state to 45 feet. In Tunnel No. 2, excavation of rock was about 94 percent completed and concrete lining was underway on a large scale. Approximately two miles above the Falls, the intake structures, by which the waters of the Niagara River will be diverted into the tunnels at the rate of 15,000,000 gallons per minute, advanced to the point where the emergency gate was already set in place at the end of No. 1 gathering tube, and progress was being made on placing concrete for the No. 2 gathering tube.

At the powerhouse site, concrete for the draft-tubes of the first five units, which will begin operation early next year, had been poured. The scroll-case for Unit No. 1 was in place and was ready for installation of the first generating unit. The first five steel penstocks, each 19 feet in diameter and 492 feet long, had been erected on the face of the 300-foot cliffs of the Lower Niagara Gorge, while work was progressing to erect the remainder of the penstocks for

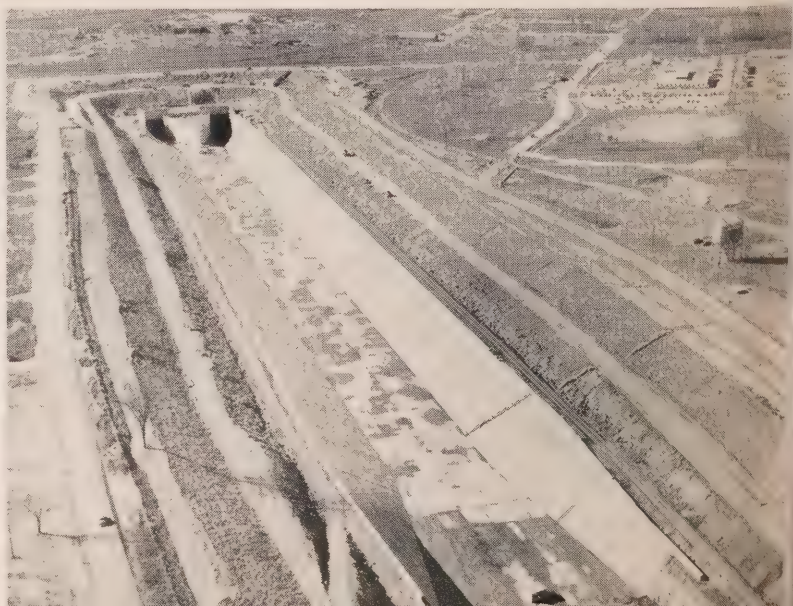
the 12-unit phase. At the same time concreting of the cliff-face, and the "envelopes" for the penstocks, was proceeding. At the powerhouse itself, the substructure concrete had been placed partially to the 12th unit, while the superstructure had been erected to the seventh unit. Considerable progress was noted on the new control room.

### Pumped-Storage Scheme

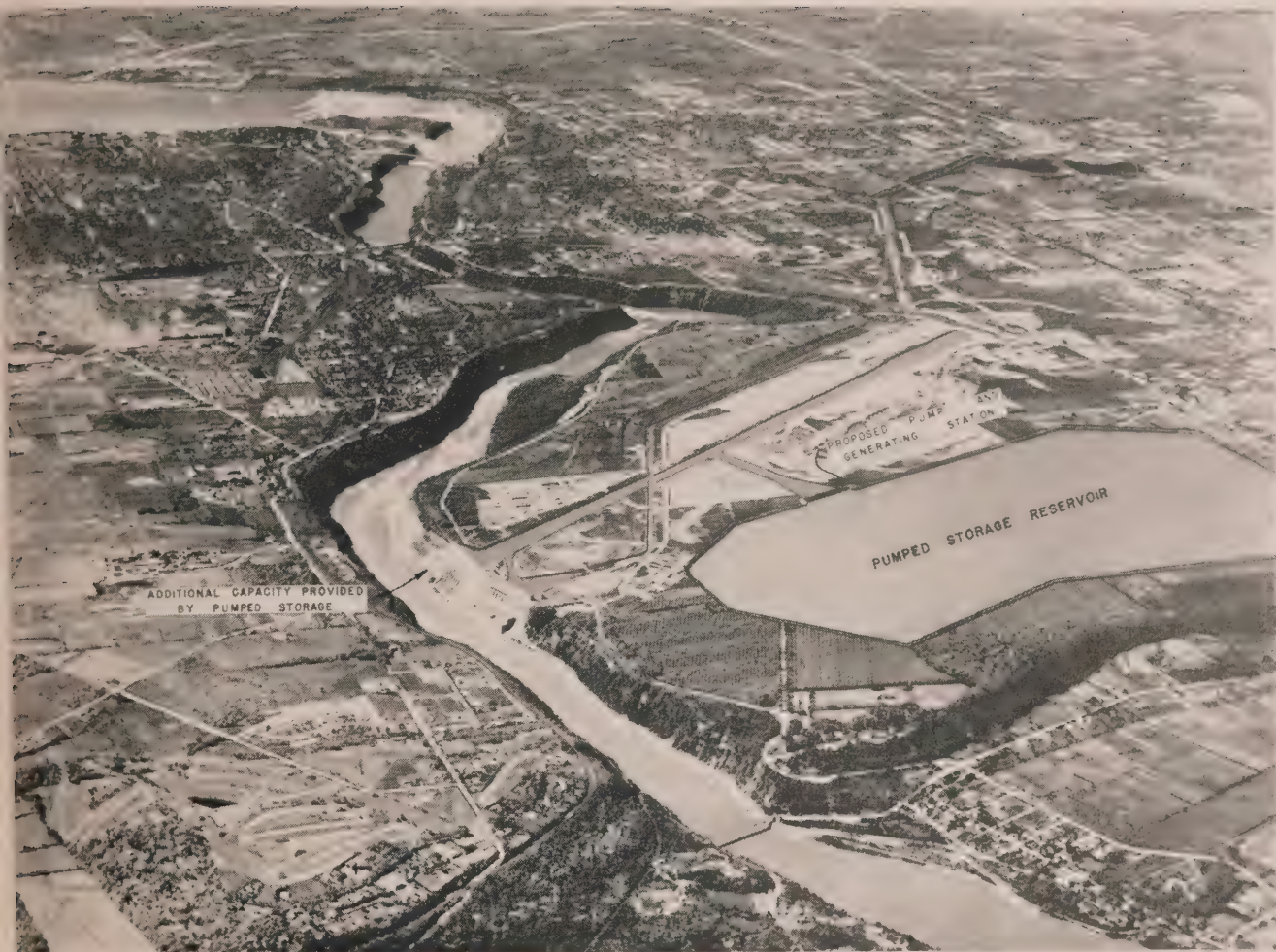
On July 22, Prime Minister Leslie M. Frost and Chairman Robert H. Saunders jointly announced plans to expand the generating facilities of this development by means of a pumped-storage reservoir scheme and the addition as required, of four more 100,000 horsepower units which will raise the ultimate installed capacity of the plant to 1,828,000 horsepower. The plan—on which construction has since started—involved erection of a reservoir to cover some 700 acres and contain 650 million cubic feet of water. Pumps will lift the water into the reservoir and, when operated in reverse, will act as turbo-generators—with an installed capacity of 228,000 horsepower. Water will be pumped into the reservoir at night. At peak demand periods, the same water will flow back through the pumps to permit fuller use of all generating units in the new plant, particularly at times of high demand when water use restrictions under the Niagara Division Treaty, signed between Canada and the United States in October, 1949, would prevent full capacity operation of generating facilities. To accommodate the extra water, the open-cut canal and forebay have also been widened.

**AUTHORIZED** late in 1953, Manitou Falls Generating Station, scheduled for initial service early in 1956, will augment power resources in Northwestern Ontario by 46,200 horsepower.

**TWIN** tunnels of Sir Adam Beck-Niagara Generating Station No. 2 surface at 2,200-foot long trapezoidal section of 2¼-mile open-cut canal (shown here) which leads to headworks of new powerhouse. (See Page







**PUMPED** storage plan will permit Hydro to store water in 700-acre reservoir during night, raising ultimate installed capacity of Niagara plant to 1,828,000 horsepower.

### Work Begins on Remedial Works

Official approval was given on July 22 for the installation of remedial works in the Niagara River. Actual construction commenced in December, 1953. The program is to be carried out jointly by Canada and the United States, according to recommendations by the International Joint Commission. Purpose of the works is to enhance the beauty of the Falls by creating a more uniform flow in the Niagara River, particularly over the 300-foot crestline of the Horseshoe Falls which are eroding at the centre, and to contribute to the most effective use of water for power production.

The remedial plan calls for construction of a 1,550-foot long dam at Grass

*(Continued on page 6)*

**ONTARIO HYDRO**, in December, 1953 started work on its share of Niagara remedial works to enhance beauty of Falls and contribute to most effective water use for power purposes.







ONE of several conferences during 1953 on the St. Lawrence Project included, l. to r., Hickman Powell, Trustee, with Franklin Leerburger, Dr. Constantine Belousow and Richard Hazen, consulting engineers, New York State Power Authority, examining one of Hydro's St. Lawrence Models with D. G. Harkness and E. T. Ireson, Generation Department; Hon. George H. Challies, 1st Vice-Chairman; J. R. Montague, Director of Engineering, and Dr. Otto Holden, Ass't. General Manager, Engineering.



MAKING the most of enforced delays, Ontario Hydro survey teams were gathering information for construction of three large hydraulic models of St. Lawrence River. This is Model No. 1, reproducing in its 170-foot length, distance of 16.10 miles between Ogdensburg and Leislman's Point on the river itself. This view looks down stream with the United States shore located on the right.

Island Pool to control the water level in the Chippawa-Grass Island Pool area; excavation of a channel on the Canadian flank and on the Goat Island flank of the Horseshoe Falls which will produce an unbroken crestline and the desired distribution of flow over the Falls.

At the same time, earth and rock will be used to fill in the ends of the Horseshoe Falls to eliminate incidental flow over the extremities of the crest and produce an unbroken flow of water over the precipice.

The remedial scheme was developed by engineers of the Canadian Government, Ontario Hydro, and United States Army Corps of Engineers working in close liaison. They made exhaustive studies of the river-bed and year-round flow of the Niagara River in the vicinity of the twin cataracts.

It was Hydro's well-known scale model of the Niagara River area which played a vital part in the remedial scheme studies. Depicting five miles of the river, from the tip of Grand Island to Rainbow Bridge below the cataracts, the model measures 95 feet long and 37 feet wide.

Its size permitted engineers to accurately simulate all conditions of the river in this area, including the minute variations of river flow and the contours of the river-bed.

#### Progress on the St. Lawrence Project

In early November, President Eisenhower announced that the New York State Power Authority will be the official United States agency to work with Ontario Hydro, named earlier as the Canadian agency to construct half of the proposed 2,200,000-horsepower St. Lawrence power project. This action was hailed as most heartening news, raising hopes that actual construction on this vital development would commence this spring. The only major water power resource now available to Hydro within economic transmission distance of large Southern Ontario load centres, power from this project will be equally shared by the two agencies.

First appeals from opponents of the project are to go before the United States Court of Appeals at an early date,

following successful efforts by the U. S. Administration to speed up litigation in connection with the power development. While opponents of the project have sought to delay action on it at every opportunity, Hydro has made the most of enforced delays. Since April, 1953, survey teams have been gathering information in the International Rapids Section of the river, between Prescott and Cornwall, where the power development will be constructed. Important data on the geology of the area, the contours of the river bed, and the flow of the river itself have been gained. Much of this information is being used in the construction of large hydraulic models of the river which are now nearing completion. These models enable Hydro engineers to put their theoretical computations through a practical test in advance of actual construction. The potential savings are enormous. Studies on the Commission's Niagara models, for instance, are expected to save more than \$5 million in construction costs at the Sir Adam Beck Niagara Generating Station No. 2.



### Strategic Role of Steam Power

With the addition of the third and fourth units at J. Clark Keith Station, Windsor, and the fourth unit at Richard L. Hearn Station, Toronto, Hydro added—from these sources alone during the year—a total of 311,000 horsepower of installed capacity.

Steam power is today providing an increasing percentage of the total energy requirements of the Southern Ontario system as power demands continue to mount. Beginning last November 9, new all-time high primary peak demands in Southern Ontario were established, while, at the same time, low water reserves in the Ottawa River drainage area—owing to the effects of summer-long drought—considerably reduced the output of hydraulic generating plants on the river. The availability of large supplies of steam power at this time helped materially to meet power demands.

As a further protective measure, arrangements between Ontario Hydro and the Detroit-Edison Company were finalized during the year for what is believed to be the largest international exchange of power in the world. The arrangement called for the construction of two powerline interconnections—the first across the Detroit River, between Windsor and Detroit, and the second, across the St. Clair River between Sarnia

and Marysville, Michigan. During the first part of September 1953, the two interconnections were completed, each with a capacity of from 125,000 kilowatts to 150,000 kilowatts, thus assuring the province of further power protection in the amount of approximately 300,000 kilowatts or 400,000 horsepower. While enabling Hydro to help compensate for power losses owing to low water reserves, the interconnections also permit Hydro to supply power to Detroit-Edison in periods of high run-off, thereby providing substantial operating economies for both systems.

This arrangement was, furthermore, a product of the wonderful international co-operation which is enjoyed between Canada and the United States. This spirit of cordial relations with the United States was celebrated on December 18 at Marysville, Michigan, when a plaque was unveiled to commemorate the international exchange of power. (See page 10.)

### Major Rural Expansion

The fact that Hydro, by December last year, had in less than 13 years more than doubled its number of miles of rural line and had a nearly three-fold increase in the number of rural customers it is serving, is, in itself, a significant explanation of the spiral that has developed in power demands in recent

years. In 1940, there were 19,251 miles of rural lines, and 122,358 rural customers. Five years later, when Hydro undertook its great postwar expansion program, there were 21,569 miles of line and 156,560 customers in rural areas throughout the province. By December 1 of last year, Ontario Hydro had 369,073 rural customers, and 41,477 miles of rural line. In July, 1953, more rural customers (4,091) were added than in any other single month in the Commission's history. Today, there are more than 400 electrical applications on the farm.

### Frequency Changeover

At the same time, Hydro's huge program of frequency standardization, involving the changeover of some 904,700 customers in Southern Ontario's "25-cycle island" to 60 cycles was going forward on a highly efficient basis. By the beginning of December, 1953, a total of 2,395,823 pieces of frequency-sensitive equipment had been changed over or altered for 365,623 customers of all classes.

*(Continued on page 8)*



APPROXIMATELY 50 gauges—several automatic—have been placed at strategic points along Lawrence International Rapids Section to gather data on water level variation. Readings from automatic gauge are taken once a week from cylinder for study by Hydro engineers.



MORE rural customers (4,091) were added in July, 1953 than in another single month to date. Here is a typical Ontario farm where milking, with electrically-operated equipment is simple and sanitary.









A SIGNIFICANT step in 1953 was signing of one of most progressive agreements in Canadian labor history between Ontario Hydro and Ontario Hydro Construction Allied Council, A.F. of L. Shown seated are Chairman Saunders, and G. Russell Harvey, right, Chairman of the Allied Council. Standing, l. to r., Alex Reith, International Association of Machinists; E. Schofield, Hotel and Restaurant Em-

ployees and Bartenders International Union; David Forgan, Director of Construction; Dr. Otto Holden, Assistant General Manager—Engineering; W. B. Bowyer, Collective Relations Department, Ontario Hydro; H. Green, International Hodcarriers, Building and Common Laborers Union of America, and Ernie Bridges, International Brotherhood of Boilermakers, Iron Shipbuilders, Blacksmiths, Forgers and Helpers.

teaching agreements in Canadian labor history. In the presence of labor and commission officials, Chairman Robert I. Saunders put his signature to an agreement between the Ontario Hydro and the Ontario Hydro Construction Allied Council, A. F. of L. affecting approximately 9,000 construction workers in 98 trade classifications. The single agreement covers all construction workers on the staff of Ontario Hydro and its contractors throughout the province. It was indeed a milestone in Canadian labor relations. At bargaining time, it means that the Allied Council will speak in behalf of the membership of all the unions it represents, calling for the negotiation of one all-embracing agreement and no longer requiring management to meet with each of the individual unions

now represented on the Council to formulate separate agreements.

Mr. Saunders praised the loyalty of the more than 20,000 men and women on the Hydro staff throughout the province. "Their loyalty to the Commission, their fine abilities in their particular work, have been demonstrated time and time again," he said. "Capable administration at all levels, combined with Hydro's renowned engineering efficiency and thoroughness, have enabled us to often perform what appear, at first glance, impossible feats of achievement in our efforts to give our customers the best service possible."

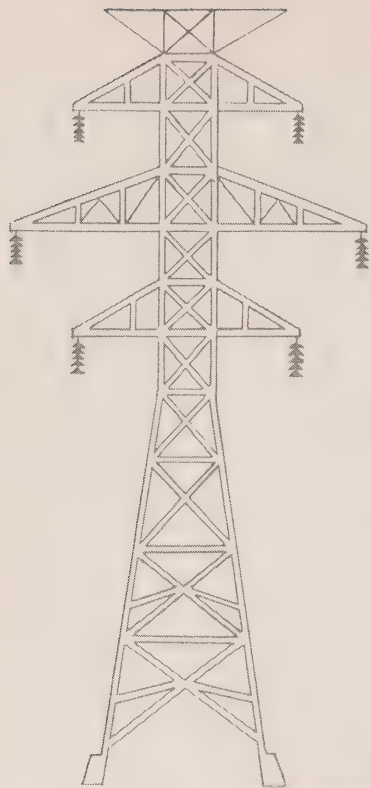
#### Atomic Power

Last November 12, Prime Minister Leslie M. Frost and Chairman Saunders announced that arrangements had been

completed to carry out a feasibility study on the development of an atomic reactor for the generation of power. Facilities will be provided at the Chalk River plant where a small staff of Hydro engineers and specialists from the Chalk River establishment will be set up, headed by a project co-ordinator appointed by Ontario Hydro. "These long-range studies to explore new power sources are necessary to ensure that an adequate supply of electricity will be available when required."

"Those of us who live in Ontario, are justifiably proud of the tremendous progress of our publicly-owned Hydro enterprise," said Mr. Saunders. "In the years that lie ahead, Ontario Hydro will undoubtedly contribute to a still higher standard of living for our people."





# INTERNATIONAL PARTNERS

Keynoted by Theme "Partners in Progress," Ceremony  
Marks First Official Exchange of Power Between  
Ontario Hydro and Michigan's Detroit Edison Company





**A**N ICY WIND whipped across the St. Clair River at Marysville, Michigan, on December 18 and tugged at the flags of state draping a bronze plaque. Though the wind was chilly, it did nothing to cool the warm spirit of international goodwill evident in the faces of a group of men gathered to pay an imposing tribute to yet another milestone achieved in the "good neighbor" relations between Canada and the United States . . .

The impressive ceremony marked the first official exchange of electric power between the two important systems of Ontario Hydro and the Detroit Edison Company, Michigan. Believed to be the largest international exchange of power in the world, it was made possible by the construction of two interconnecting power lines across the Detroit and St. Clair Rivers in September, 1953.

During the ceremony, keyed by the theme, "Partners in Progress," and attended by government, utility and labor representatives, Prentiss M. Brown, Chairman, Detroit Edison Company, called upon the Hon. G. Mennen Williams, Governor of the State of Michigan, and Bryan L. Cathcart, M.P.P., Lambton West, representing Ontario Prime Minister Leslie M. Frost, to unveil the plaque bearing, in part, the inscription: "Commemorating the initial interchange of electric power between the systems of Detroit Edison Company and The Hydro-Electric Power Commission of Ontario . . . an enduring monument to progress and co-operation between nations in the free world . . . this international transmission line, linking Canada and the United States, was made possible by the foresight, skill and engineering ability of employees dedicated to the service of two great electric systems."

A brief dedication service was conducted by Reverend A. E. Duplan of Marysville Episcopal Church.

Some 2,357,000 electric customers of the two systems will benefit by the interconnections, which have a total capacity of 250,000 to 300,000 kilowatts. Completed last September, the first spans the Detroit River between Windsor and Detroit; the second crosses the St. Clair River between Sarnia and Marysville. At the Windsor-Detroit crossing, the lines connect two fuel-electric stations, Hydro's J. Clark Keith station and Detroit Edison's Delray plant. The Sarnia-Marysville connection is made between Hydro's Sarnia Transformer Station (which is also connected with the J. Clark Keith plant) and Detroit Edison's Marysville plant.

Identical plaques are to be erected at Sarnia, Windsor and Detroit to perpetuate the international exchange of power.

*(Continued on page 12)*

**P**ARTICIPATING in the unveiling ceremony were Hydro Chairman Robert H. Saunders, Michigan Congressman Louis C. Rabaut, E. Janes, M.P.P., Lambton East; Bryan L. Cathcart, M.P.P., Lambton West; Hon. G. Mennen Williams, Governor of Michigan; Prentiss M. Brown and Walker L. Cisler, Chairman, and President and General Manager, respectively, Detroit Edison Company, and Richard L. Hearn, General Manager and Chief Engineer, Detroit Edison Company.



**WORDING** of plaques to be mounted on each side of the river at two crossover locations.

#### **PARTNERS IN PROGRESS**

**DECEMBER 18, 1953**

Commemorating the initial interchange of electric power between the systems of The Detroit Edison Company and The Hydro-Electric Power Commission of Ontario . . . an enduring monument to progress and co-operation between nations in the free world . . . This international transmission line, linking Canada and the United States, was made possible by the foresight, skill and engineering ability of employees dedicated to the service of two great electric systems.

Authorizations in Canada were granted at the instance of the Honourable Leslie M. Frost, Prime Minister of Ontario; The Right Honourable C. D. Howe, Minister of Trade and Commerce and Minister of Defence Production; and The Honourable Lester B. Pearson, Secretary of State for External Affairs. In the United States the enabling legislation was placed before Congress by Senator Charles E. Potter and Representatives Jesse P. Wolcott and Louis C. Rabaut of the State of Michigan.

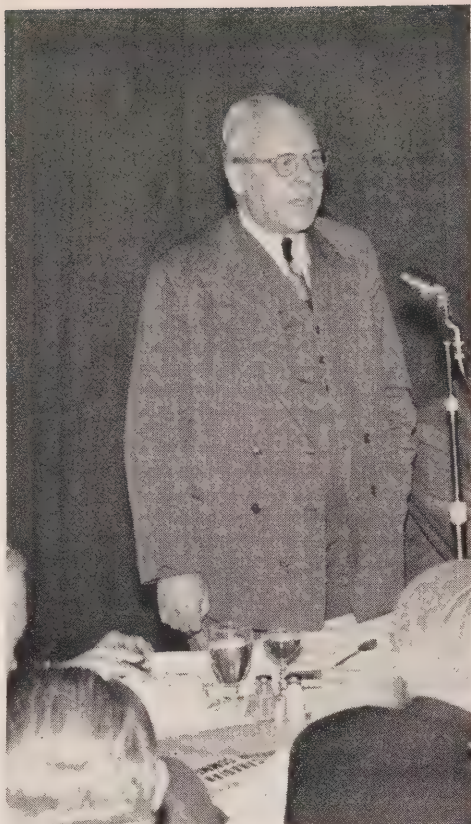
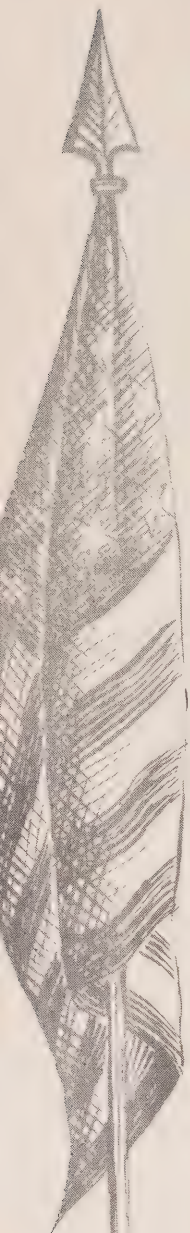
**The Hydro-Electric Power  
Commission of Ontario**

Robert H. Saunders, Chairman  
Richard L. Hearn,  
General Manager and Chief Engineer

**The Detroit Edison Company  
of Michigan**

Prentiss M. Brown, Chairman  
Walker L. Cisler, President





▲  
**EXTENDING** greetings on behalf of Premier Frost also was Col. the Hon. William Griesinger, M.P.P., Ontario's Minister of Planning and Development.

**FOLLOWING** ceremony, guests visited Detroit Edison's new St. Clair Generating Station. Shown in control room with "A" Operator Lawrence B. Arnold are a group of Ontario Hydro Engineers, from left to right, F. H. Chandler, E. G. Archer, W. J. F. Baxter, H. D. Rothwell, and C. B. Sharpe.



### Strong Bonds

"The interconnections represent two strong bonds between two friendly countries which, by joint effort, are making it possible for the industries of Michigan and Ontario to have an additional amount of electric power," said Governor Williams. "In addition, the interconnections will make it possible for Ontario and Michigan customers to enjoy still further the advantages of modern electrical living. Those of us who are privileged to live as free men in a free world are convinced that co-operation and good neighborliness are the keys to happy living and association."

Declaring that he was deeply moved by the honor of representing Prime Minister Frost, Mr. Cathcart described the occasion as a memorable day in the lives of electrical users on both sides of the border.

In presenting two duplicates of the plaque to Chairman Robert H. Saunders, Walker L. Cisler, President and General Manager of Detroit Edison, said that "Detroit Edison is proud to be working with Ontario Hydro." He stated that he has the highest regard for the ability, energy and foresight of Ontario Hydro's Chairman.

Mr. Saunders paid sincere tribute to Mr. Cisler, stating that he had heard his name mentioned wherever he travelled in the electric power field. In West Berlin earlier this year, and more recently in London, England, Mr. Saunders had been asked whether he knew Mr. Walker Cisler of Detroit Edison. Mr. Saunders pointed up the fact that Hydro was based on co-operation. He drew attention to co-operation at all levels of government which reached a peak during negotiations for the international power cross-over between the two utilities.

The Hydro Chairman also paid tribute to Prime Minister Frost, the Rt. Hon. C. D. Howe, Minister of Trade and Commerce and Minister of Defence Production, and Hon. Lester B. Pearson, Secretary of State for External Affairs, for their part in making





DISPLAYING keen interest in the event were these representatives of Sarnia Hydro-Electric Commission, I. to r., Manager Charles Phelps, Mayor W. C. Nelson, Commissioner-elect Chas. J. Spicer, and Chairman J. J. Barr.



the important power exchange possible. American legislators who took a leading part in sponsoring the arrangement were Senator Charles E. Potter and Representatives Jesse P. Wolcott and Louis C. Rabaut of the State of Michigan. Mr. Saunders lauded the ability and efforts of Dr. Richard L. Hearn, Hydro's General Manager and Chief Engineer, who played a prominent part in the arrangements for the power hook-up. He also thanked all members of the Commission's engineering and construction staffs for their outstanding work on the important interconnections.

Speaking during the official luncheon following the ceremony, Col. the Hon. William Griesinger, Ontario Minister of Public Works, also brought greetings from Premier Frost, expressing his regret that he was unable to be present for the important occasion.

"We have co-operated with our American cousins on many occasions. We hope that we will soon be co-operating with them in a very positive way in the development of the navigation and power potentialities of the St. Lawrence River," Col. Griesinger said.

#### Greater Security

The international tie-lines will provide greater service security for the power systems of Ontario Hydro and Detroit Edison—a strategic advantage from a defence standpoint and in emergencies in the maintenance of essential services. Since Ontario Hydro's giant Southern Ontario System is already tied in with the Province of Quebec, and with New York State across the St. Lawrence and Niagara rivers, the new lines help establish a far-reaching power grid including Ontario, Michigan, New York State and Quebec. Mr. Saunders said that some

2,000,000 horsepower of the resources available to Hydro come from plants located on inter-provincial or international waters.

Of further significance in this arrangement with Detroit Edison is the fact that, with the power reserves of each system available to the other, neither utility is dependent upon one type of power generation, since the Detroit Edison is essentially a fuel-electric system while Ontario Hydro is predominantly hydro-electric. This enables Ontario Hydro to help compensate for power losses owing to low water reserves in its system, and, on the other hand, in periods of high run-off, Hydro is able to supply power to Detroit Edison, thereby providing substantial operating economies for both systems. With the Detroit Edison system operating entirely at 60 cycles, the interconnections are an important dividend of Hydro's frequency standardization program currently underway, involving the changeover to 60 cycles of 904,700 customers in a 12,000-square mile "25-cycle island" in Southern Ontario.

#### Construction Triumph

Connecting the two systems was a challenging job. Hydro and Detroit Edison engineers were faced with the hazardous problems of cables becoming entangled in debris on the river bottoms during the crossings, and by the heavy navigation on both rivers. Engineers estimated that, as a consequence, three days might be required at each point for stringing the conductors. However, at Windsor, with favorable conditions and expert planning, a major portion of the stringing operation was completed in one day. The same efficient team carried out operations at Sarnia in less than a day.

The whole stringing operation, of course, had to

*(Continued on page 21)*



# "ROADEO" WINNER

## Ontario Hydro Driver Wins Ontario Championship in Single-Axle Trailer-Truck Division During Competitions

ONTARIO HYDRO entrants in the recent Seventh Canadian Truck "Roadeo" achieved noteworthy success with Donald Semmens, Frequency Standardization Division, winning the Ontario Championship title in the single-axle trailer-truck division.

In recognition of his driving skill, Mr. Semmens was presented with a \$100 cash prize, together with a trophy and plaque. Semmens' supremacy in this contest qualified him for competition in the Dominion finals in which he placed fourth netting him an additional prize of \$25.

To promote and encourage interest in careful driving and participation in future "Roadeos" among its staff of drivers, the Commission also has approved the award of a matching cash prize of \$125 to Mr. Semmens, this award to be accompanied by a suitably-inscribed scroll signifying and commending his driving ability.

Hydro's contribution to the success of the 1953 "Roadeo" is worthy of note, with 19 Commission truck drivers volunteering for the competitions. Each of the 19 men, including five from the Construction Division, three from Central Garage, and 11 from the Frequency Standardization Division, were the proud possessors of accident-free records in the 12-month period preceding the "Roadeo." This is one of the main qualifications necessary for all entrants in the annual competition.

At the elimination trials conducted by Frank Huff, International Harvester Co. of Canada Ltd., three of the 19 were selected to represent the Commission, including Mr. Semmens and Alex. H. Courtney, both F.S.D. drivers who qualified for the single and tandem-axle trailer-truck divisions respectively. Ronald W. Collins, Construction Division, was chosen to compete in the straight truck division.

With the approval of J. M. Hambley, Deputy Assistant General Manager — Administration, a paved-parking space at the A. W. Manby Service Centre near Islington was used as a practise course.

Acceding to the request of Mr. Huff who also conducted elimination trials for several transport and other companies Hydro placed its training facilities at the disposal of British American Oil Company Ltd., Direct-Winters Transport, and William Dalley Cartage Company, Toronto, who had seven representatives preparing for the "Roadeo."

Transport Inspectors W. C. Vance and Jack Scott, Ontario Hydro; J. Roy Noddle and "Tiny" Budd of British American Oil Co., and James Condari of Direct Winters, acted as trainers and judges of the 10 competitors.

During the second week five training days of eight hours proved possible. Each of the ten drivers was "put over the course" approximately four times daily with instructors acting as judges at each

*(Continued on page 21)*



W. H. MALE, President, Automotive Transport Assn. of Ontario, presents the single-axle trailer-truck Ontario Championship trophy to Ontario Hydro driver Don Semmens.

PROUD and happy members of the Service Centre team with their "Roadeo" trophies, are, l. to r., E. F. G. Bird, Ontario Hydro; J. Roy Noddle, D. E. Coomber and Hugh Grandy, B.A. Oil Co.; Mr. Semmens and Transport Inspector, W. C. Vance, Ont. Hydro.





# "PLAYING IT SAFE"

**D**ESCRIBING Hydro's Sir Adam Beck-Niagara Generating Station No. 2 project as "one of the most accident-free jobs the Commission has ever undertaken," in view of the nature and magnitude of the development, Gordon Mitchell, Project Manager, was accorded hearty applause at the conclusion of a recent address to members of the Ontario Society of Safety Engineering.

Held in Toronto, the meeting featured Mr. Mitchell as guest speaker. While telling a graphic yet technically factual story of the Commission's largest power project, with the aid of photographic slides, he also dealt at length with the safety program inaugurated by Ontario Hydro for every phase of construction at Niagara.

"The safety record achieved on the project," said Mr. Mitchell, "is the result of planned programs, backed by Ontario Hydro, its contractors, and the unions represented on the development."

The Niagara project is broken up into divisions, each under its own superintendent, such as powerhouse, intakes, trapezoidal section, etc. Each division has a labor-management production committee, whose chief concern is safety.

The speaker explained that these committees, composed of supervisors, stewards and project workers, meet once a week under the division head. Where possible, the committee makes

its own decisions, and acts on these. If the decision is not within the committee's power, it is referred to a central safety committee, which meets once a month with Mr. Mitchell and other senior personnel.

## Getting Results

"With supervisory personnel present at these meetings," the Project Manager said, "we are getting results in accident prevention."

The safety program starts the moment a man is hired. He is verbally instructed in the safety rules and regulations. He is told that the wearing of hard safety hats is obligatory in most places on the project. This important rule has saved many head injuries. Masks, goggles, aprons and gloves of a safety nature, required in certain work, are available to him. He realizes from the first that his protection from accident is of primary concern to Hydro.

Mr. Mitchell outlined the various steps taken to ensure the safety of the workers. Safety shoes are sold to them at cost, thus cutting foot injuries to a minimum. The safety shoe is attractive in appearance, as well as utilitarian, and sales to men on the job have been "amazing."

With a variety of vehicles employed on the job, from light trucks to 30-ton monsters, special attention is paid to the men who drive. They must pass eye and other tests, in order to qualify. Drivers of heavy trucks are enrolled

in a five-day training program. There is a continuous program of safety through posters, slides, movies, bulletins and other available means. Each division has its own safety superintendent.

## Tunnel Rescue Team

A fully-equipped tunnel rescue truck for the twin 5½-mile tunnels is also ready to "go into action" in case of emergency.

"Thank goodness we haven't had to use it yet," he said.

In addition to the 30-bed, fully equipped project hospital—built by the Commission, and staffed by two resident doctors and by nurses and first-aid men—all electricians and many other workers are trained in resuscitation. First-aid posts are located at strategic points throughout the site, and each of the three camps has its own fire brigade.

He emphasized that Hydro pays its men while they are receiving safety instruction. Hydro's contractors are included in all the safety programs, and also have their own. The unions have likewise given "full co-operation, and business agents instruct the stewards to offer every aid.

Awards are presented for outstanding safety records, including the annual awards for foremen with no time lost by accident in their crews during the year, which are presented at an annual safety dinner.

The speaker was introduced by W.

(Continued on page 21)



**C**UTTING prior to dinner, are, l. to r., W. Ross Strike, Second Vice-Chairman, Ontario Hydro; E. E. Sparrow, Chairman, Ontario Workers' Compensation Board; Gordon Neff, 1953 O.S.S.E. President;

Gordon Mitchell, Project Manager, Sir Adam Beck-Niagara G.S. No. 2, guest speaker, and John MacLellan, Manager, Ontario Hydro's Accident Prevention Dept. and this year's President of the O.S.S.E.



# ALONG HYDRO LINES



## ANNOUNCE SENIOR REGIONAL APPOINTMENTS

**T**HREE senior staff appointments in Hydro's Toronto and Western Regions were announced recently by Chairman Robert H. Saunders. E. R. Lawler, who has served electrical customers in Southern Ontario for nearly 45 years, has been appointed Consultant, Toronto Region. His successor as Manager, Toronto Region, is Adam W. S. Smith, formerly Consumer Service Engineer, Western Region. Succeeding Mr. Smith is G. M. McHenry whose headquarters will be at the Regional Office in London.

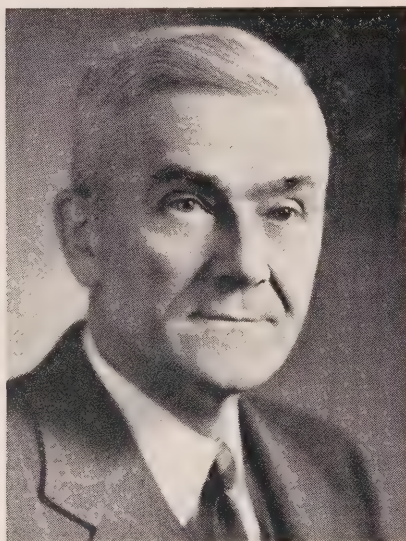
Mr. Lawler's service with electrical utilities dates from 1905 when he was employed as a meter reader with the Toronto Electric Light Company. Two years later he enrolled in the University of Toronto and graduated in electrical engineering in 1910.

After four years with the youthful Toronto Hydro-Electric System, he joined Ontario Hydro and assisted in the promotional work being carried out at the time by Sir Adam Beck.

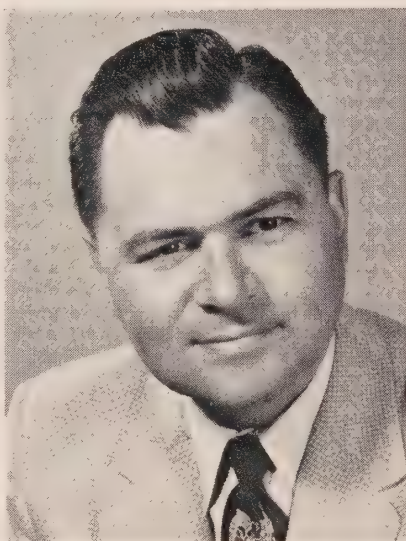
Subsequently he served for more than a quarter century as District Engineer

in Southwestern Ontario, becoming District Engineer for Toronto and the surrounding municipalities and rural areas in 1943. He was appointed Manager of the Toronto Region when it was established in 1947 and it was his responsibility to plan the organization and day-to-day operations of this highly important region. He is a member of the Association of Professional Engineers of Ontario, the American Institute of Electrical Engineers, and The Electric Club of Toronto.

Mr. Smith assumes his new responsi-



**E. R. LAWLER**



**G. M. McHENRY**



**ADAM W. S. SMITH**

bilities after nearly 30 years of service with Hydro. Upon graduation from McGill University in 1923 with a B.A.S. (Electrical), he served first as Rural Superintendent in Brantford. He became Assistant Engineer-Municipal in 1929, and served in that capacity until 1947 when he was appointed Consumer Service Engineer, Western Region.

Born in London, Ontario, he is a member of a number of clubs and associations, including the Engineering Institute of Canada, the Association of Professional Engineers of Ontario, the London Chamber of Commerce, and the Canadian Club of London.

Mr. McHenry was born in Toronto and graduated from the University of Toronto with an electrical engineering degree in 1940. He joined Hydro's System Planning Department in 1948. Ten years later, he became Area Planning Engineer for the Frequency Standardization Division and later was transferred to the Consumer Service Division. Mr. McHenry is a member of the American Institute of Electrical Engineers and newly-elected Councillor of the Association of Professional Engineers of Ontario.

The Toronto and Western regions are two of nine areas established by Hydro in 1947 to decentralize Hydro's province-wide operations and to provide for better service through "on the spot" contact with Hydro customers in the various regions. Regional headquarters are established in London, Hamilton, Niagara Falls, Toronto, Barrie, Belleville, Ottawa, North Bay, and Port Arthur.



## Form New Research Advisory Committee

BECAUSE OF CHANGES in organization and personnel during the past year, it has been necessary to review existing facilities for liaison between the Research Division and other Divisions of Ontario Hydro.

As a result of this review, it has been decided to disband the present Research Advisory Committee and to form a smaller Research Advisory Committee comprised of the Directors of Engineering, Operations, Planning and Supply, together with the Director and Assistant Director of Research. In making this announcement recently, Dr. Richard L. Barn, General Manager and Chief Engineer, stated that the duties of this Committee will be to advise the Director of Research and Senior Management on such matters as long-range planning of research activities and facilities, consideration of major research projects, integration of research programs with other Commission activities, and to co-ordinate and regulate the activities of the various Research Panels.

## Galt Meter Readers Will Receive Uniforms

CITY METER READERS of the Galt Public Utilities Commission will soon be receiving special uniforms following the recent decision by the local commission to accept the lowest tender received from clothing manufacturers. A rough estimate shows it will cost the commission about \$15 for an outfit, with three of them being purchased. The outfits will probably consist of three shirts, two battle-dress type jackets, two pair of trousers, one cap and one winter jacket. Each man will receive that clothing.

## Woodstock Increases Insurance Coverage

WOODSTOCK Public Utilities Commission at a recent meeting approved a schedule of increased insurance on various departments, as recommended by the insurance surveyor. In some instances the coverage was considered adequate, while others, such as the main water works and electric plant, were considerably increased, as was also the coverage of the office building and contents on Dundas Street.

## ACCLAIM VETERAN GALT COMMISSIONER

H. O. HAWKE, dean of municipal life in the City of Galt, was recently returned to office for another two-year term with the Galt Public Utilities Commission by acclamation. With his re-election he began his 31st year of service as a member of the former Galt Hydro-Electric Commission and its successor, Galt P.U.C.

A former Vice-President of the O.M.E.A. and Chairman of District No. 6, Mr. Hawke has for many years been closely identified with Hydro affairs. A native of Hawkesville, Ontario, where his family were pioneers, he moved to Galt and attended Galt Collegiate Institute, later entering the insurance business in that city.

Mr. Hawke has been deeply interested in Hydro since its inception. He has been active on the Galt Commission since 1923 and has served the O.M.E.A. in a number of capacities. In 1931 he was appointed Chairman of the O.M.E.A. Insurance Committee, and at the winter convention of 1933 he was elected to the

executive of the association. He became a director of District No. 6 in 1940 and at the annual convention of the association the following year he was re-elected to the executive.

The Chairmanship of District No. 6 fell into his capable hands in 1941, and he was recently elected to this office for another term. He was named a vice-president of the O.M.E.A. at its 1942 convention. At the present time he is one of two Directors representing District 6 on the parent executive.

An energetic personality in the public life of Galt, Mr. Hawke has served on the city council and the planning commission, and in the past has been a candidate for the legislature. Also interested in citrus fruit farming, owning property in the Rio Grande valley, as well as fishing, he declares his first hobby is Hydro.

E. V. Brown, who had just completed his first term with the Galt commission, was also returned to office by acclamation for a further two-year term.

## STREAMLINE O.M.E.A. - A.M.E.U. ANNUAL CONVENTION

GREATER cohesion and uniformity of agenda and a quickened pace will be the keynote of the 1954 joint annual convention of the O.M.E.A. and A.M.E.U.

In contrast with previous conventions, the 1954 gathering will last only two days. In former years sessions commenced on Monday at noon and concluded at noon on Wednesday.

Scheduled for March 1 and 2 at Toronto's Royal York Hotel, the 1954 convention will feature more joint sessions, with members of the A.M.E.U. attending meetings with their commissioners to hear discussions of general policy.

Technical sessions have been eliminated by the A.M.E.U. after general agreement that technical subjects receive adequate attention at the A.M.E.U. summer conference held annually at Bigwin Inn, and at meetings of district associations. Likewise it has been decided to dispense with the presentation of papers relating to accounting and office administration, as these matters form the basis of discussions at annual conferences sponsored by the Eastern and Western A.M.E.U. Accounting and Office Administration Committees.

Lt. Col. A. A. Kennedy and Norman A. Grandfield, Presidents of the O.M.E.A.

and A.M.E.U. respectively have announced the following convention program:

### Monday, March 1, 1954

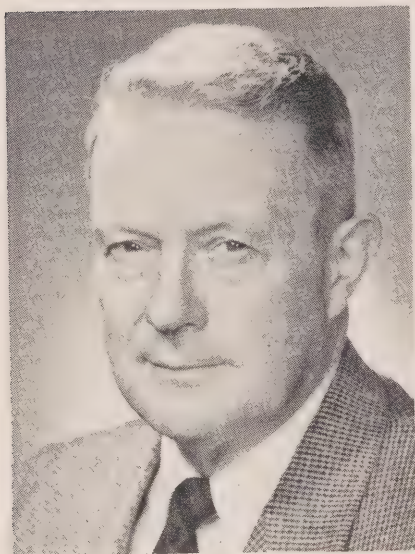
Morning  
(9.30 a.m.)—O.M.E.A. Business Meeting (Ballroom);  
—A.M.E.U. Business Meeting (Banquet Hall);  
Afternoon —Joint session: Reports from Ontario Hydro representatives (Banquet Hall);  
Evening —Joint banquet: Presentation of O.M.E.A. long service awards and three A.M.E.U. honorary membership; to A. W. J. Stewart, Toronto; R. L. Dobbin, Peterborough, and J. W. Peart, St. Thomas. Entertainment (no speakers).

### Tuesday, March 2, 1954

Morning —Joint session: Discussion and consideration of O.M.E.A. Resolutions;  
Afternoon —Joint session: O.M.E.A. resolutions and discussion regarding pending contract between Bell Telephone Co. and municipal Hydro systems in Ontario on joint use of poles.



## ELECTED TO 1954 A.P.E.O. COUNCIL



PROF. W. L. SAGAR

**F**OUR representatives of The Hydro-Electric Power Commission of Ontario have been elected to the 1954 slate of officers of the executive council, Association of Professional Engineers of Ontario. The Association, established under provincial charter in 1922, is the licensing body for registering professional engineers in Ontario.

Incoming President of the 12,000-member Association is William L. Sagar, P.Eng., Professor of Civil Engineering, University of Toronto, who also is Vice-President of the national engineering body, the Dominion Council of Professional Engineers. He succeeds J. Herbert Smith, P.Eng., of Toronto.

Two of the four Ontario Hydro representatives elected will occupy two of the three top seats on council. They are John Russell Montague, Director of Engineering, H.E.P.C., newly-elected



J. R. MONTAGUE

1st Vice-President of the Association, and John Henry Waghorne, Engineer-in-Charge, Electrical Research, H.E.P.C., 2nd Vice-President.

Mr. Montague, a native of Niagara Falls, Ont., is a graduate (class of 1914) of the Uni-

versity of Toronto in mechanical engineering. A member of the Association since 1943, he served as councillor of the Mechanical and Industrial Branch during 1950-'52, and in 1953 was 2nd Vice-President.

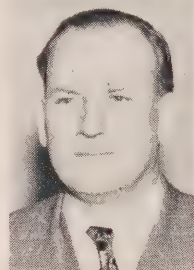
His successor as 2nd Vice-President, Mr. Waghorne, was born at Lynn Valley, B.C., and is a graduate of Queen's University (1939) in electrical engineering. He has been a member of the A.P.E.O. since 1946.



J. H. WAGHORNE

Serving on the council also will be Robert Campbell McMordie, program and planning control engineer, HEPC, Toronto, as a civil Branch councillor. Mr. McMordie, born in Toronto, and a graduate of University of Toronto in 1930, has been a member of the Association since 1938 and served on the A.P.E.O. council in 1951, '52 and '53.

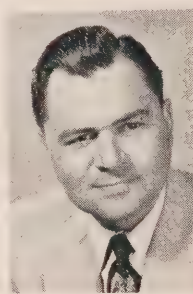
Hydro's Consumer Service Engineer, Western Region, London, Gordon Morris McHenry, will serve as one of two electrical Branch councillors during 1954. A native of Toronto and graduate of University (1940) he has been a member of the Association since 1944.



R. C. McMORDIE

Other members of Council elected for the coming year are:

John Stewart Ellis, Niagara Falls (civil); Gordon W. Ames, Sarnia, and James M. King, Peterborough (chemical and metallurgical); Harold R. Osborne, Toronto (electrical); John H. Fox, Toronto and John H. Ross, Toronto (mechanical and industrial); Duncan R. Derry, Toronto, and R. G. Mott, Falconbridge (mining).



G. M. McHENRY

## Peterborough Starts Underground Wiring

PETERBOROUGH Utilities Commission has begun the first installation of underground wiring in a residential area of the city. The project was started on Shirley and Bellaire streets, reports W. Howard Powell, General Manager. Work is also progressing on the Bellevue Street sub-station. The steel structure to support 44,000-volt lines, switches, lightning arrestors and fuses has been erected and three 600-kva, temporary transformers moved into place.

The commissions' peak load for October increased 3.96 percent, from 24,529 kilowatts to 25,500 kilowatts, and the kilowatthour consumption rose 7.2 percent (from 10,541,600 to 11,301,600 kilowatthours) over the same month in 1952.

## Kitchener Engineer Urges Pumping Scheme

A. W. BROMLEY, Chief Engineer of the Kitchener Public Utilities Commission, has proposed a plan whereby the waters of Georgian Bay could be used to bring back the Grand River to its former state. His plan, to be considered at a conference under the auspices of the Waterloo Chamber of Commerce, call for the installation of powerful pumps which would lift the Georgian Bay water the 700 or 800 feet from the bay to the headwaters of the Grand. It is Mr. Bromley's belief that a revitalized Grand River would eventually raise the water level in the surrounding area, benefitting communities from the upper reaches of the river to Lake Erie and giving the farmers a reliable year-round source of water.

Executive director of the Association is Thomas M. Medland; Registrar and Secretary is J. Murray Muir, P. Eng., and Field Secretary is Thomas Keefer, P. Eng., all of Toronto.

This year's principal theme by Association will be vocational guidance aimed at encouraging more high school students to enter engineering courses at University. The A.P.E.O. program will be in the form of booklets and brochures explaining engineering and its importance which will be distributed to Ontario high schools, plus speaking engagements by professional engineers to students throughout the province.



## Toronto Chairman's Wife Passes

DEEPEST SYMPATHY is being extended to Bertram Merson, the Chairman of the Toronto Electric Commissioners, in the recent death of his wife. Born in Toronto, Mrs. Merson was a life member of the W.A. of St. John's Church, Norway, and St. Matthew's Anglican Church, Toronto. She belonged to the John Dayman Friendship Club for many years.

## Toronto Inaugurates New Yonge St. Lighting

MAYOR ALLAN LAMPORT threw the switch recently on the first section of new street lights which will eventually brighten Yonge Street between Front and College Streets. Known as facade lights, the fixtures are attached to the front of the buildings and will eliminate the necessity of poles.

## Toronto Mourns Veteran Engineer

RECENT PASSING of John W. Gilson, 66, electrical engineer with Toronto Hydro for 40 years, was mourned by his many friends. Born in Hull, England, and a veteran of World War I, he had been a resident of Toronto for 47 years. His wife, Lillian, two sisters, Mrs. B. Carmichael and Mrs. F. Richardson; and two brothers, Harry and Bert, survive.

## Windsor Invests Surplus in Bonds

WINDSOR Utilities Commission has received permission from Ontario Hydro to invest up to \$300,000 of Hydro division funds in Dominion of Canada bonds. Maturity date of these bonds will not be later than 1960. The sum to be invested has been held by the local commission for frequency standardization costs yet to be met.

## Preston Ready For Expansion

PRESTON Public Utilities Commission is preparing for an industrial building boom in that town. Harold B. Mattson, Town Engineer and Manager, Preston P.U.C., stated recently there will be plenty of electrical power available to new industry. New substations have been erected, equipped with the latest facilities, and by the beginning of 1955 will be able to handle a transformer load up to 10,6000 kilowatts. The new transformers are of dual-frequency design, and can be changed over to 60-cycle operation without expense or delay. About a third of Preston's industries have been converted to 60 cycles. Changeover of domestic customers to 60 cycles is scheduled to start in January, 1955.

Mr. Mattson is content that Preston faces a healthy, expanding future. Its large number of small industries is the best insurance it could have against a recession or depression, he pointed out. When one type of industry is slack, another is working overtime.

## ATOMIC EXPERT TO ADDRESS ENGINEERS

ONE OF the Western world's foremost authorities on nuclear physics and the industrial application of atomic energy, Andrew Kramer of Chicago, will visit Toronto, Jan. 30, to address the annual meeting of the Association of Professional Engineers of Ontario, it was announced by Association President J. Herbert Smith, P. Eng.

Some 1,500 professional engineers from all parts of Canada are expected to attend the one-day meeting (at the Royal York Hotel) to hear Kramer, and also to hear from the various APEO committees on the work accomplished by the Association during 1953.

Kramer, an electrical engineer, is a member of the U.S. Atomic Energy Commission, and is the author of several books on atomic energy and its use in industry. As early as 1935, he made drawings outlining an atomic power plant; and as the atomic field developed from the first carbon pile at the University of Chicago to the atomic explosions over Japan, he followed the development closely. Shortly after World War II, he wrote a series of articles explaining the development of work on the atomic bomb. He has also made an



ANDREW KRAMER

intensive study of heat transfer problems in relation to nuclear reactors.

Other highlights of the Association meeting will be the showing of an exhibition of paintings executed by members in their leisure time; and a report on the vocational guidance program which the APEO has set up to encourage young Canadian students to study engineering.

## Safety Training Reduces Accidents

ELECTRICAL EMPLOYERS Association of Ontario staged a one-day conference recently at the Queen Street Hydro Sub-station of Chatham Hydro Electric Commission and discussed such topics as accident prevention and resuscitation methods. Wills MacLachlan, Association Engineer, traced the background of fatality reduction. He said that following two five-year test periods, it was found there were far less accidents in the second period (following World War II) because of improved training for linemen.

## Eliminate Staples From Hydro Bills

PASTE, instead of metal staples, is now being used by the Ottawa Hydro-Electric Commission in attaching important notices to customers' Hydro bills. The Ottawa Hydro is the first organization in the city to do something about the complaints against the practice of stapling documents together, giving those who must unstaple them broken finger-nails and cuts and bruises.



# REDSSELL HEADS METERMEN

**N**ORMAN REDSELL, Etobicoke Hydro-Electric Commission, was elected President of the Central Ontario Meter Association at the recent fall meeting. Held at the Credit Valley Golf Club, the morning session was highlighted by a paper on watthour meters by J. M. Vanderleck, Research Engineer, which formed the basis of an interesting discussion at the conclusion of the address.

With Al. Christie, North York H.E.C., presiding, the afternoon session was devoted to addresses by Allan F. Telfer and J. O. Reeve, Canadian Standards Association, who described the organization's functions, and procedures of the Association.

The following executive was named to assist Mr. Redsell for the ensuing year: 1st Vice-President—H. E. McBroom, Toronto H.E.S.; 2nd Vice-President—Thomas Honan, New Toronto P.U.C.; Secretary—Stanley Trodd, Orillia W.L. & P.C.; Committee—Lionel Blaker, East Central Region, Ontario Hydro, Belleville; V. B. Bailey, Toronto Township H.E.C.; and Thomas Martin, Etobicoke H.E.C.



◀ J. M. VANDERLECK, Ontario  
Hydro Research Engineer



MEMBERS of 1954 executive, Central Ontario Meter Association, seated, l. to r., are: Stanley Trodd, Orillia W.L. & P.C.; Norman Redsell, Etobicoke H.E.C.; Al. Christie, North York H.E.C.; H. E. McBroom, Toronto H.E.S.; Standing, l. to r., Thomas Honan, New Toronto P.U.C.; Thos. Martin, Etobicoke H.E.C., and Lionel Blaker, Ontario Hydro.

▲ DISCUSSING electrical problems are, l. to r., N. J. Lake, Ontario Hydro; R. A. Coleman, Port Hope H.E.C.; G. E. Sulman, Port Perry H.E.S.; Harry Foy, Toronto, and Jos. Douglas, Scarborough P.U.C.





## "ROADEO" WINNER

(Continued from page 14)

hazard, explaining faults and methods of correction.

As the practice continued, instructors became increasingly confident that their charges were going to do well. That confidence began to justify itself on the opening day of the "Roadeo," when five of the team qualified for the Ontario finals. During the finals D. E. Doomber, B.A. Oil Co., gained the Ontario championship in the straight truck class with a score of 351 points out of possible 400. He later secured third place with 356 points in the Dominion championship.

But even better things were in store. A total of 21 expert Ontario drivers competed in the single-axle trailer division with Semmens emerging as the new Ontario champion with a score of 344 points.

Then came the crowning triumph for the Service Center team in the last event of the two-day "Roadeo," with Hugh Grandy of the B.A. Oil Co. scoring 348 points in the tandem-axle trailer division to become the Dominion Champion. This was a clear-cut win of 43 points over the runner-up.

Congratulating Semmens on winning the Ontario Championship and his three-year accident-free driving record with the Commission, Chairman Robert H. Saunders also commended "Roadeo" officials for their interest in promoting safer driving.

"I am delighted with the excellent performances of the Hydro entrants, and I am sure their success will inspire more Hydro drivers to enter future "Roadeos," he said.—by Frank C. Wood.

## INTERNATIONAL PARTNERS

(Continued from page 13)

synchronized with shipping movements on the river. This was accomplished through the excellent co-operation of the Royal Canadian Mounted Police and the United States Coast Guard. According to marine reports, there was an average of one large ship passing the interconnection point every fifteen minutes. In addition, there was a considerable volume of small craft (ferries, pleasure boats, etc.)—by Miss A. Heeney.

## ANNOUNCE NEW INTERNATIONAL POWER HOOK-UP

**F**URTHER protection for Ontario's electrical users will result from a new international power hook-up announced on January 12 by Ontario Hydro Chairman Robert H. Saunders. Approval by the U.S. Federal Power Commission on January 9, 1954, for Niagara Mohawk Power Corporation, at Syracuse, New York, to export power, means that up to 250,000,000 kilowatthours of energy annually can be supplied by the American utility to supplement Hydro facilities.

Mr. Saunders, in heralding the interconnection as another tangible dividend of Hydro's frequency standardization program, stated that the latest arrangement follows closely on an interconnection recently made between Ontario Hydro and the Detroit Edison Company of Michigan. Mr. Saunders commented that "both international hook-ups were made possible because of Ontario's rapidly-growing 60-cycle system." The interconnections with the American utilities, as well as contracts now in effect between Ontario Hydro and Quebec, represent "a huge power pool which enables us to make the most efficient use of the power available." Through these beneficial interconnections, Ontario Hydro and the power utilities outside the province can be of mutual assistance to one another. When one area has a surplus it can export to another regardless of international or inter-provincial boundaries.

Specifically, the interconnection with the Niagara Mohawk system will be made between Massena, New York, and Maple Grove (near Cornwall, Ontario). Power from Massena will be delivered from the plants of the St. Lawrence River Power Company, a Niagara Mohawk subsidiary. "The speedy action of the Federal Power Commission in approving the export arrangement means a great deal to Ontario Hydro at this particular time," the Hydro Chairman stated. "The need for additional emergency power in Ontario has become more urgent this year because of the record flow of the Ottawa River, one of Hydro's chief hydraulic sources. The F.P.C. approval is a still further example of the excellent co-operation between Canada and the United States, and it is all the more important in that it enables neighboring power utilities on opposite sides of the border to work together for the benefit of their customers."

Mr. Saunders lauded the action of Canadian External Affairs Minister Lester B. Pearson, who has been instrumental in pressing for both interconnections. He added that the combined total of new resources available to Ontario Hydro through the Niagara Mohawk and Detroit Edison hook-ups was approximately 500,000 kilowatts—equivalent to the output of Ontario Hydro's Des Joachims and Chenaux Generating Stations on the Ottawa River, and greater than the December, 1953 peak load for the City of Toronto.

## PLAYING IT SAFE

(Continued from page 15)

Ross Strike, Q.C., Second Vice-Chairman of the Commission, who paid tribute to Gordon Mitchell, and his distinguished military and construction record.

"Gordon Mitchell is the only engineer who has done 'double time' at Niagara," said Mr. Strike. "He worked on the construction of Sir Adam Beck-Niagara Generating Station No. 1, and was in charge of the night shift for excavation. After various important posts throughout the Province, he was named Project Manager at Niagara Falls in February, 1951."

### Pattern to Follow

In thanking the speaker, Colonel W. A. Bryce, Director of the Department of Public Safety, University of Toronto,

said: "The exposition you have given of the Niagara Project, its efficiency, and the concern of your management for its employees is a pattern all of us should be proud to follow in our own organizations. Your speech has been a high spot of our year."

Gordon Neff, Safety Director for Lever Brothers Ltd., and President of the Society, was in charge of the meeting. John MacLellan, Manager of Ontario Hydro's Accident Prevention Department, and now President-elect of the Ontario Society, read messages from Chairman Robert H. Saunders and senior officials, expressing regret at inability to attend and wishing every success to the cause of safety in industry as exemplified by the Society.—by Horace Brown.



# ONTARIO HYDRO NEWS INDEX

1953

## A

	ISSUE
A Year of Impressive Achievement .....	February-March
And the Genie Appeared .....	May
A Queen is Crowned (Coronation) .....	May
All-Canadian Product (C.I.L. Plant at Maitland) .....	June
Avenue of Commerce (St. Lawrence Dev.) .....	July-August
Aquatic Detectives (Power Canal - Niagara) .....	July-August
Along the Golden Strip (Toronto Township) .....	September
Artificial Respiration (This and That) .....	September
Another Step Forward (Georgian Bay M.E.A.) .....	October
Atom, Power from the .....	November-December
A Cloud of Witnesses .....	November-December
 SIR ADAM BECK	
Memorial Service .....	September
 SIR ADAM BECK NO. 2 PROJECT	
Big as a Boxcar (Penstocks) .....	January
Viceregal Visit .....	April
Will Increase Niagara Capacity .....	April
Accent on the International .....	May
Tour Niagara Project (C.M.A. Ont. Division) .....	May
Board of Trade Tour .....	June
Major Expansion .....	July-August
From Far and Near .....	September
Distinguished Guests .....	September
Cover and Page One .....	October
 ASSOCIATION OF PROFESSIONAL ENGINEERS	
Successful Year .....	February-March
Urges Greater Interest in A.P.E.O. Work .....	June
Award 19 Scholarships .....	October
 ASSOCIATION OF MUNICIPAL ELECTRICAL UTILITIES	
N. A. Grandfield Heads A.M.E.U. ....	February-March
A.M.E.U. President's Report (R. H. Martindale) .....	February-March
Presentations .....	February-March
A.M.E.U. Technical Conference .....	July-August
With Justice and Equity .....	July-August
Cyclone Problems .....	November-December
 AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS	
Toronto A.I.E.E. 50th Anniversary .....	September
The First Fifty Years .....	October

## B

Big as a Boxcar (Penstocks) .....	January
Best Preservative (John Suggitt) .....	February-March
B.C. Electric Company (High Head Station) .....	April
Busy Session (District 5 O.M.E.A.) .....	April
Board of Trade Tour, Toronto .....	June
Bell's Voice Highway .....	September
Banks, E. H. (Announce Senior Appointments) .....	October
Brebner, F. R. (Announce Senior Appointments) .....	October
Beck, H. W. (Announce Senior Appointments) .....	October
Brunt, Sir David (British Visitor) .....	October

## C

Contented Cows (F.S.) .....	January
Challenging Problems .....	February-March
Cliff, D. P. (Membership Growing) .....	February-March



	ISSUE
Chandler, R. B. (Honored by E.I.C.)	February-March
Creosote (Best Preservative)	February-March
Chats Falls Fire (Quick Action)	February-March
C.L.L. Plant, Maitland (All-Canadian Product)	June
Challenge For Engineers (Address by S. R. Williams)	June
Camp, Mobile	June
Canadian Standards Assoc. (For Safety's Sake)	July-August
Cleveland Studies Toronto (St. Lawrence Dev.)	July-August
Co-operative Fire Insurance (Dist. 5 O.M.E.A.)	July-August
Commanding Position (Editorial)	September
Canadian Electrical Code, Publish 6th Edition	September
Canadian Conference on Prestressed Concrete	September
Canadian General Electric Co. (Advertisement)	September
Code, A. G. (Hydro Names in the News)	October
Chase, George (Bowmanville) Resigns	October
Cyclone Problems	November-December
Christmas Tree, The Magic of	November-December

#### COMMUNICATIONS

Voices From the Sky	September
Bell's Voice Highway	September

#### CORONATION

A Queen is Crowned	May
The Seven Queens	May

#### CANADIAN NATIONAL EXHIBITION

Previews of Progress	October
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#### CANADA

Canada's Television (F.S.)	January
What of My Country	January
Canada's Proud Record	February-March
Power—The Key to Expansion	May

#### HALLIES, HON. GEORGE H.

"With Justice and Equity"	July-August
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### D

Detweiler, Daniel B. (Golden Anniversary)	February-March
Dobbin, Ross L. (Honored by E. I. C.)	February-March
Dolan, D. Leo (Promote Canadian Atmosphere)	February-March
Detroit-Edison—Hydro Tie-in (Foto-News)	February-March
Davis, G. F. (Appointed Chief Accountant)	February-March
Dickinson, H. E. (New Manager at St. Marys)	June
Detroit-Edison Company (Lines Across the Border)	September
Day Has Come, The (Sarnia Industries)	September
Day Chemical of Canada (The Day Has Come)	September
DeCou Stone House, John (Link With the Past)	October
Davis, G. F. (Announce Senior Appointment)	October
Davis, G. R. (Ottawa)	October
Displays, Hydro (Previews of Progress)	October

#### DOMINION COUNCIL OF ENGINEERS

Hardy Heads Dominion Engineers	July-August
--------------------------------	-------------

### E

Extend Program (Dist. 8 O.M.E.A.)	April
Electric Club of Toronto (Election of Officers)	April
Expand 60-cycle Facilities (Toronto)	April
Engineering Building — (New Unit)	May
Unique Design	September
Electric Dikes (F.S.)	September

#### ELECTRIC SERVICE LEAGUE OF ONTARIO

Increased Support Urged (Bert. Merson)	February-March
Extend Program (Dist. 8 O.M.E.A.—M. J. McHenry)	April

#### ENGINEERING INSTITUTE OF CANADA

Honored by E.I.C. (Dobbin-Chandler)	February-March
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## F

	ISSUE
Furanna, A. L. (Welcome Challenge) .....	February-March
Fort, A. E. — Co-operation — The Golden Key .....	February-March
Resigns at St. Marys .....	April
Fostering the Kitchen .....	April
Ford Motor Co. of Canada (On The Line) .....	May
Fourth City (F.S.D.) .....	June
Floyd, G. D. (A.I.E.E. Vice-President) .....	June
For Safety's Sake (Canadian Standards Assoc.) .....	July-August
Fiberglas Canada Limited (The Day Has Come) .....	September
Floyd, G. D. (Announce Senior Appointments) .....	October
First Fifty Years, The (Anniversary - A.I.E.E.) .....	October
Fifteenth Power Source (Manitou Falls G. S.) .....	November-December

### FINANCIAL

Welcome News .....	October
--------------------	---------

### FREQUENCY STANDARDIZATION

Canada's Television .....	January
Contented Cows .....	January
A Year of Impressive Achievement .....	February-March
Welcome Challenge (A. L. Furanna—London) .....	February-March
Co-operation—The Golden Key (A. E. Fort—St. Marys) .....	February-March
Expand 60-cycle Facilities .....	April
Pressing Matter (Changeover-Windsor Plant) .....	May
Plane Talk (Superior Stone Co., Kitchener) .....	June
Fourth City (Windsor Changeover) .....	June
Steady Progress .....	September
Electric Dikes .....	September
Seven-League Strides .....	November-December
Veteran Span .....	November-December

### FROST, PRIME MINISTER LESLIE M.

Link With the Past .....	October
Great Challenge .....	October
A Cloud of Witnesses .....	November-December

## G

Golden Anniversary (Kitchener Ceremony) .....	February-March
Good Response (A. W. Murdock—Rates Report) .....	February-March
Great Changes .....	October
Great Challenge (E.O.M.E.A.) .....	October
Gordon, D. J. (Hydro Names in the News) .....	October

## H

### HEARN, RICHARD L., GENERATING STATION

Fourth Unit Completed .....	July-August
Halliday, James J. (Retirement) .....	January
Hydro Highlights — 1952 .....	February-March
Historical (Golden Anniversary) .....	February-March
(Protracted Battle) .....	February-March
Honored by E.I.C. (Dobbin-Chandler) .....	February-March
Hydro School (Alliston) .....	April
Hydro Airlift (Thorah Island) .....	April
High Head Station (Wahleach - B.C. Electric) .....	April
Happy Reflections (Toronto Hydro Quarter Century Club) .....	April
Honsberger, G. A. (Appointed Ass't. Comptroller) .....	April
Hillary, Alfred—Beachville (Obituary) .....	April
Hillery, R. H. (Admin. Assistant—Regions) .....	April
Hastings, M. B. (Pres. Electric Club of Toronto) .....	April
Hill, D. A. (Retires at Waterford) .....	June
Hardy, R. M., Dean (Heads Dominion Engineers) .....	July-August
Hambley, J. M. (Announce Senior Appointments) .....	October
Higgins, J. A. (Perth) .....	October
Hubbell, F. D. (Windsor) Obituary .....	October



## HYDRO HOME FORUM

	ISSUE
Creamed Ham and Chicken .....	January
Study in Food Costs .....	May
Banana Ice Cream .....	June
Frozen Peach Jam .....	July-August
Grape Jelly .....	September
Christmas Gingerbread .....	November-December

## HYDRO SCHOLARSHIPS

Lakehead Student Wins Hydro Scholarship .....	June
Hydro Scholarships .....	October

## HYDRO WAR MEMORIAL

A Cloud of Witnesses .....	November-December
----------------------------	-------------------

## I

Inspectors, Electrical .....	January
Index, Hydro News .....	January
Increased Support Urged (Electric Service League) .....	February-March
Inspection—Niagara Power Canal (Aquatic Detectives) .....	July-August
Industry, Ontario—Commanding Position .....	September
Great Changes .....	October
Iron Bridge Inaugural .....	November-December
Insulators (Line Washing—Foto-News) .....	November-December

## IRON BRIDGE

More Power to the North .....	September
-------------------------------	-----------

## INTERCONNECTION (ONTARIO HYDRO - DETROIT EDISON)

Foto-News .....	February-March
Lines Across the Border .....	September
Another Step Forward .....	October

## K

Kennedy, Lt. Col. A. A. (Appointed O.M.E.A. President) .....	June
Kilby, Walter (Retires at Chatham) .....	June

## L

Line Clearance Rural (Vital Aspect) .....	January
Ling, F. J., Heads Inspectors .....	January
Lines Across the Border (Detroit Edison - Ontario Hydro) .....	September
Link With the Past, A. (John DeCou House) .....	October
Lewis, Stanley .....	October
Labor Agreement (Historic Agreement) .....	October
Line-Washing (Foto-News) .....	November-December
Le-Line (Leamington Hospital) .....	November-December

## FIGHTING

Challenge for Engineers (Address by S. R. Williams) .....	June
---	------

## LINE MAINTENANCE

Vital Aspect .....	January
Mobile Camp .....	June

## M

## MARTINDALE, REX H.

M.A.M.E.U. President's Report .....	February-March
Retires .....	July-August
Membership Growing (D. P. Cliff Address) .....	February-March
Mtawwa Joins Hydro Family .....	February-March
Mobile Camp .....	June
Major Expansion — (Sir Adam Beck G. S. No. 2) .....	July-August



## MANUFACTURING

Commanding Position	September
Great Changes	October
Manby, A. W. (Another Step Forward)	October
McKinnon, Hugh (Sudbury)	October
Manitou Falls Generating Station (Fifteenth Power Source)	November-December
Magic of the Christmas Tree, The	November-December

## METERMEN'S ASSOCIATIONS

Meet at New Hamburg (Grand Valley)	July-August
Grand Valley Metermen	October

## MERSON, BERTRAM

Increased Support Urged (Electric Service League)	February-March
Appointed Toronto Hydro Chairman	May
Another Step Forward	October

## MURDOCK, A. W.

Good Response	February-March
Another Step Forward	October

## MUNICIPAL

Annexation Procedures Clarified (M. J. McHenry)	February-March
Mattawa Joins Hydro Family	February-March
Brantford Township (Venerable Status)	February-March
Alliston (Hydro School)	April
Casselman (318th Municipality)	April
Toronto Hydro (Fostering the Kitchen)	April
Toronto Hydro (Extend 60-cycle Facilities)	April
Etobicoke Twp. Headquarters Opening (Open House)	May
Sights on Sarnia	June
Along the Golden Strip (Toronto Township)	September
Service Calls Drop (Windsor)	September
Scarborough P.U.C. (Symbol of Progress)	November-December
Baden (Seven-League Strides)	November-December

## MUNICIPAL HYDRO-ELECTRIC PENSION AND INSURANCE

Great Challenge	October
-----------------	---------

## Mc-Mac

McHenry, M. J. (Annexation Procedures Clarified)	February-March
MacKenzie, M. H. (Voltage Dips Discussed)	February-March
McDonald, M. J. Port Arthur (Obituary)	February-March
McHenry, M. J. (Extend Program—District 8 O.M.E.A.)	April
McGregor, J. S. (Heads Toronto Chapter N.O.M.A.)	June
McHenry, M. J. (Hydro Names in the News)	October
McKenzie, R. M. (Hydro Names in the News — Appointed Burlington Manager)	October
MacKenzie, M. H. (Announce Senior Appointments)	October
McMechan, John R. (Toronto Hydro)	October
MacDonald, Col. L. R. (New Deputy General Counsel)	November-December

## N

New Unit (Engineering Building)	May
Niagara Power Canal (Aquatic Detectives)	July-August
Niagara Surgery (Remedial Works)	July-August
Niagara Remedial Works (Early Start)	October
Name New Deputy-General Counsel	November-December

## O

Opposition Disappearing (St. Lawrence Project)	January
On The Line (Ford Motor Co. of Canada)	May
Open House (Etobicoke Twp. H.E.C. Headquarters)	May

## ONTARIO HYDRO 1952

Commanding Position	September
Press Praise	September



ONTARIO	ISSUE
Commanding Position .....	September
ONTARIO MUNICIPAL ELECTRIC ASSOCIATION	
Loftus H. Reid, O.M.E.A. President .....	January
Spirited Debates Feature O.M.E.A. Session .....	February-March
Pension Plan Gains Ground .....	February-March
Membership Growing (D. P. Cliff Address) .....	February-March
Acclaimed O.M.E.A. President .....	February-March
Extend Program (District 8 O.M.E.A.) .....	April
Busy Session (District 5 O.M.E.A.) .....	April
Lt. Col. A. A. Kennedy Appointed President .....	June
Co-operative Fire Insurance (District 5 O.M.E.A.) .....	July-August
Welcome News (District 3) .....	October
Great Challenge (E.O.M.E.A.) .....	October
Another Step Forward (Georgian Bay M.E.A.) .....	October
Uniformity and Strength (District 6 O.M.E.A.) .....	November-December

P

enstocks (Big as a Boxcar) .....	January
powerful Ally (Editorial) .....	February-March
ersonnel (Challenging Problems) .....	February-March
ension Plan Gains Ground .....	February-March
aper Deluge (Records—Ontario Hydro) .....	February-March
otracted Battle (W. R. Strike) .....	February-March
erson, Roy H. (Venerable Status) .....	February-March
esentations (A.M.E.U.) .....	February-March
omote Canadian Atmosphere (D. Leo Dolan) .....	February-March
ower—The Key to Expansion .....	May
essing Matter (Changeover—Windsor Plant) .....	May
ane Talk — (F.S.D.) .....	June
ess Praise (Ontario Hydro 1952) .....	September
lymer Corporation (The Day Has Come) .....	September

PINE PORTAGE GENERATING STATION

Double Capacity at Pine Portage .....	June
---------------------------------------	------

POWER RESOURCES

Powerful Ally .....	February-March
A Year of Impressive Achievement .....	February-March
Canada's Proud Record .....	February-March
Great Changes .....	October
Welcome News .....	October
Another Step Forward .....	October
Power from the Atom .....	November-December
Iron Bridge Inaugural .....	November-December

POWER DEMANDS

Commanding Position .....	September
Great Changes .....	October
Another Step Forward .....	October

R

Records (Paper Deluge) .....	February-March
Report to the People (Chairman's Address) .....	April
Robinson, A. N., Stratford (Obituary) .....	April
Rowell, H. D. (St. Lawrence Liaison Engineer) .....	April
Ruston, David (Appointed Superintendent, Durham P.U.C.) .....	June
Ruminal Works, Niagara (Niagara Surgery) .....	July-August
Ruscitation (This and That) .....	September
Ruminal Works, Niagara (Early Start) .....	October
Russell, O. S. (Hydro Names in the News) .....	October

REID, LOFTUS H.

Appointed O.M.E.A. President .....	January
Acclaimed O.M.E.A. President .....	February-March
Great Tasks Ably Performed (Address) .....	February-March
Obituary .....	April



## RATES

A Year of Impressive Achievement .....	February-March
Good Response (A. W. Murdock) .....	February-March
Welcome News .....	October

## RESEARCH

Best Preservative (Creosote—John Suggitt) .....	February-March
---	----------------

## RURAL

Vital Aspect (Rural Line Clearance) .....	January
Countless Benefits .....	April
Wired Man .....	September

## S

Spirited Debates Feature O.M.E.A. Session .....	February-March
Successful Year (A.P.E.O.) .....	February-March
Salvage Surplus Equipment (And the Genie Appeared) .....	May
Seven Queens, The (Coronation) .....	May
Sights on Sarnia (Municipal) .....	June
Smith, J. H. (A.P.E.O.) .....	June
Smith, R. J., Perth (A Veteran Retires) .....	June
Standards, More About (This and That) .....	September
Sarnia Industries (The Day Has Come) .....	September
Steady Progress (F.S.) .....	September
Service Calls Drop (Windsor) .....	September
Sitzer, I. K. (Hydro Names in the News) .....	October
Stiles, J. W. (Hydro Names in the News) .....	October
Sharpe, C. B. (Announce Senior Appointments) .....	October
Symbol of Progress (Scarborough P.U.C.) .....	November-December
Seven-League Strides .....	November-December

## SAUNDERS, CHAIRMAN ROBERT H.

A Year of Impressive Achievement .....	February-March
Report to the People .....	April
Awaiting "Green Light" (St. Lawrence) .....	April
Visit to Berlin .....	September
Welcome News .....	October
Iron Bridge Inaugural .....	November-December

## STRIKE, W. ROSS, Q.C.

Protracted Battle .....	February-March
Great Challenge .....	October
Another Step Forward .....	October
Uniformity and Strength .....	November-December

## ST. LAWRENCE SEAWAY AND POWER PROJECT

Opposition Disappearing .....	January
Awaiting "Green Light" (Chairman's Address) .....	April
Another Step Forward .....	May
Avenue of Commerce .....	July-August
Cleveland Studies Toronto .....	July-August
With Justice and Equity .....	July-August
St. Lawrence Conference .....	September
Moving Closer (Foto-News) .....	November-December

## STANDARDS COMMITTEE

Making Good Progress .....	January
----------------------------	---------

## T

Television, Canada's (F.S.) .....	January
Trenton Substation, Build .....	February-March
Thorah Island (Hydro Airlift) .....	April
Toronto Hydro Quarter Century Club (Happy Reflections) .....	April
Today the Seedlings—Tomorrow the Trees .....	June
Telemeter Gives Lake Level Data .....	June
Tugwell, Ethelbert (Retires at Chatham) .....	June
Telfer, Alan F. (For Safety's Sake) .....	July-August
Toronto Township (Along the Golden Strip) .....	September
This and That .....	September



**TORONTO HYDRO QUARTER CENTURY CLUB**  
 Observes 25th Anniversary

**ISSUE**  
 January

**U**

Unger, George F. (Venerable Status)  
 Uniformity and Strength (District 6 O.M.E.A.)

February-March  
 November-December

**V**

Vital Aspect (Line Clearance)  
 Venerable Status (Pierson-Unger)  
 Voltage Dips Discussed (M. H. MacKenzie)  
 Viceregal Visit  
 Veteran Retires, A (R. J. Smith)  
 Voices from the Sky  
 Veteran Span

January  
 February-March  
 February-March  
 April  
 July-August  
 September  
 November-December

**W**

What of My Country? (Canada)  
 Welcome Challenge (Frequency-Standardization—A. L. Furanna)  
 Wahleach G. S. (B.C. Electric - High Head Station)  
 Williams, S. R. (Address—"Challenge for Engineers")  
 Weston Commission Honors Retiring Employees  
 "With Justice and Equity" (Eastern Ontario A.M.E.U.  
   Accounting and Office Administration Conference)  
 Wired Man  
 Winchester R.O.A. (Wins Bouquet)  
 Welcome News (District 3 O.M.E.A.)  
 War Memorial, Hydro (A Cloud of Witnesses)

January  
 February-March  
 April  
 June  
 July-August  
 July-August  
 September  
 September  
 October  
 November-December

**WATER RENTALS**  
 Welcome News

October

**XYZ**

YOUNG, R. B.  
 Elected Honorary Member  
 Award of Merit  
 York, F. G. (Ottawa)

February-March  
 June  
 October

**Classified Ads**

**FOR SALE**

A flat-rate water heater carrier, a current control system, for series coupling rangement.

The items for sale include the following: 1-CR7006-Y 1 Carrier Current control Panel, arranged for an ultimate 14 feeders; 1-3-Unit Motor Generator (with base extension for adding in ture date, 480-cycle alternator) consisting of: 1-Type KF frame, 15 horse- power, 3600 rpm, 120 volt induction motor with shaft couplings for 720 and 0 cycle generators; 1-type ATB, 24

pole, 9/5.2 KVA, 3600 rpm, 720 cycle, Form PK, 220 volt generator in frame 7284; 1-BC, 76, 1 kw., 3600 rpm, 36 volt, DS - 1 Exciter; 18-300 ampere, 2300 volt, coupling transformers to be connected open delta, that is 2 per feeder.

The above equipment is all standard equipment as supplied by the Canadian General Electric Company.

Motor Generator Set and coupling transformers were constructed in 1938. Control panel was constructed in 1950. This complete carrier control system was used to operate 2500 flat-rate water heaters. SALE PRICE complete: \$4,500. Apply: Peterborough Utilities Commis- sion, 223 Aylmer Street, Peterborough, Ontario.

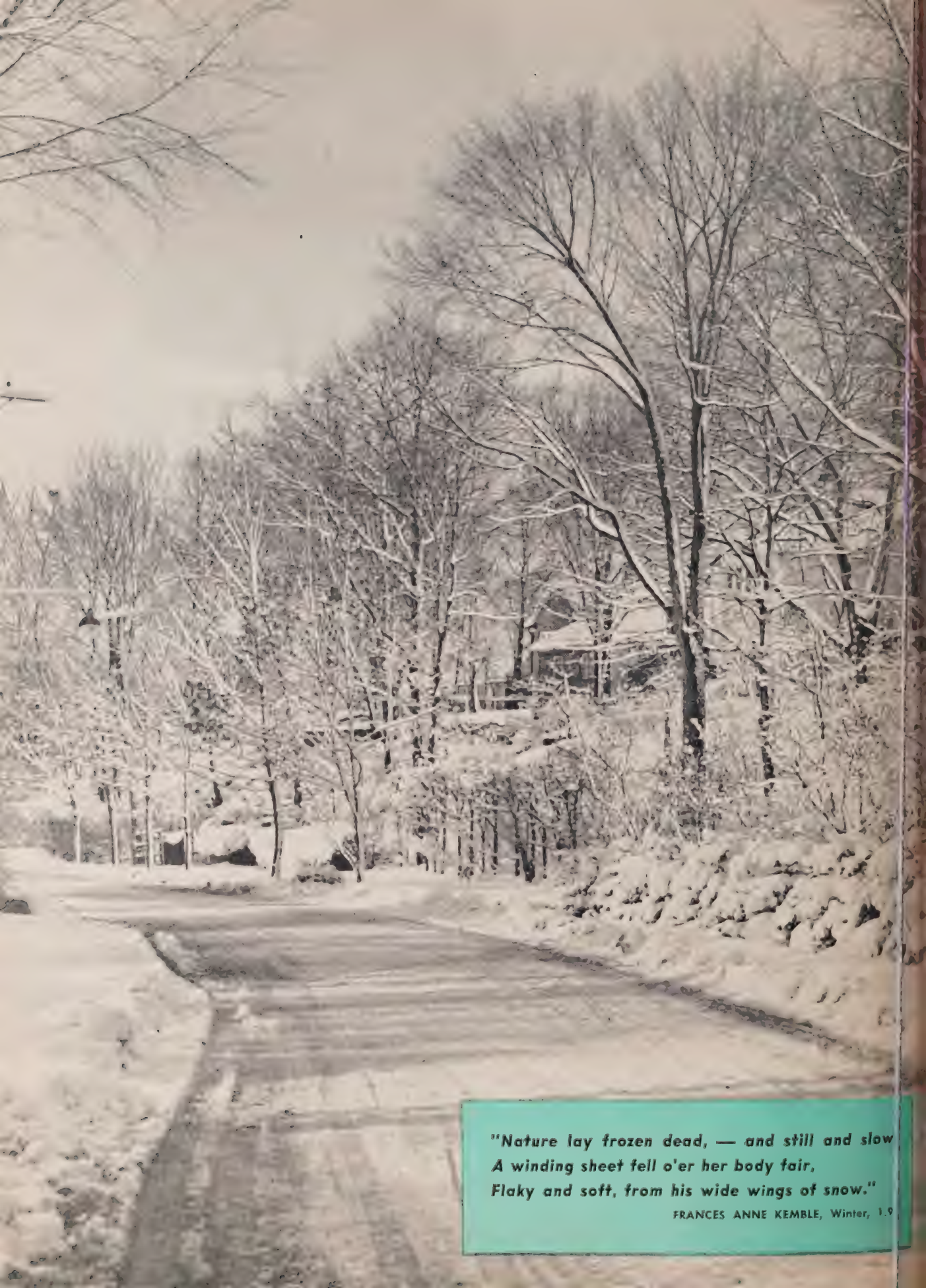
**FOR SALE**

CURRENT transformers for sale or trade: Two, Sangamo, type K30,000/5 amp, 4500 volt, 25 cycle current trans- formers, serial numbers C8167 and C8166. These transformers incorporate short-circuiting terminals and are equally suitable for either 25 or 60 cycle. A trade for current transformers with a ratio of the order of 20/1 and a 600 volt rating would be suitable. Apply—Public Utilities Commission, Watford, Ontario, Mr. G. B. Fuller, Manager.

**Red Dim-out**

A severe power shortage in Czechoslo- vakia has forced the government to com- mission hundreds of old hydro-electric plants. The shortage is so serious that most cities and towns are without power six to 10 hours a day.

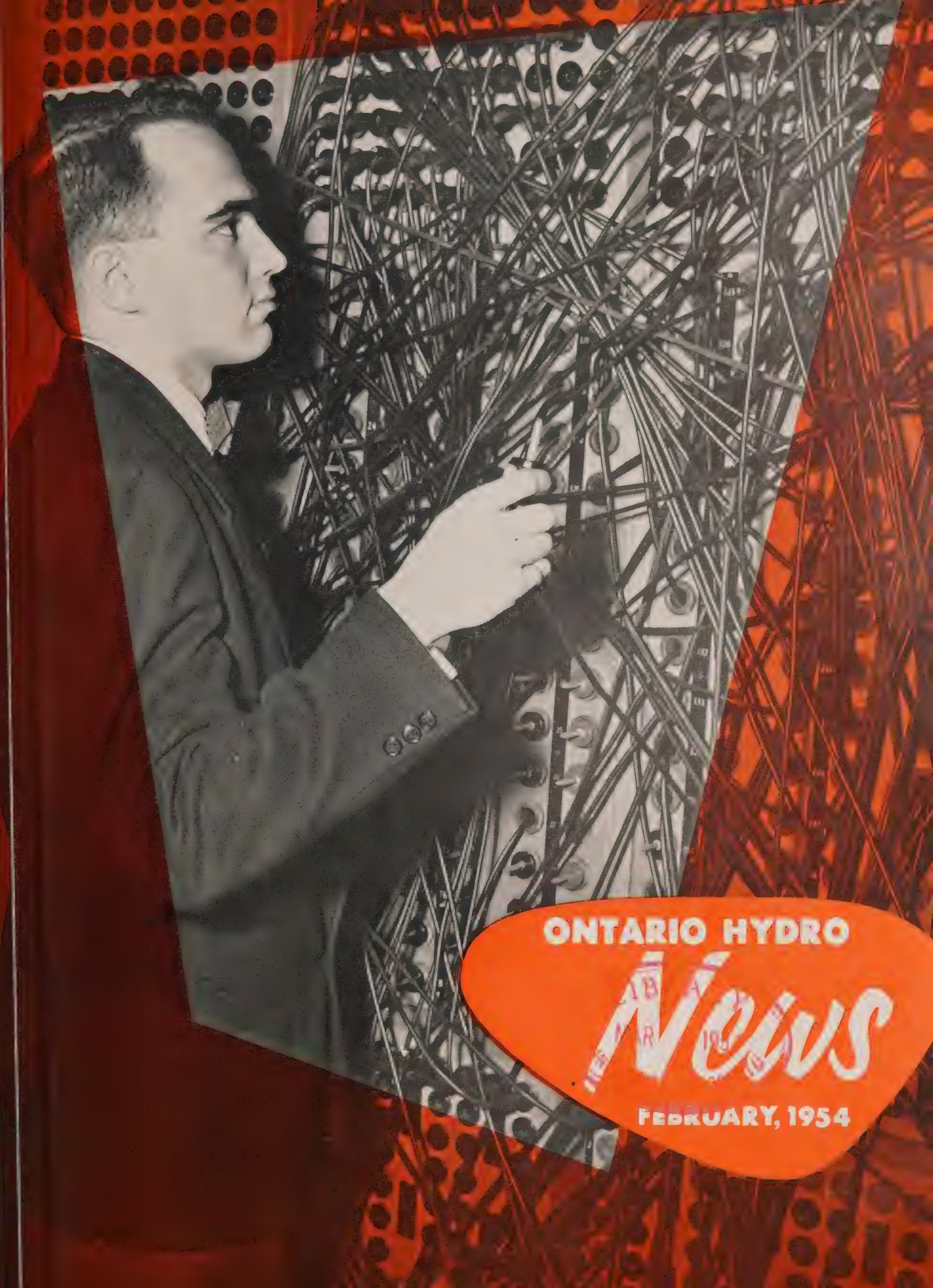




*"Nature lay frozen dead, — and still and slow  
A winding sheet fell o'er her body fair,  
Flaky and soft, from his wide wings of snow."*

FRANCES ANNE KEMBLE, *Winter*, 1.9





ONTARIO HYDRO

News

FEBRUARY, 1954



# ONTARIO HYDRO

# News

FEBRUARY, 1954

Vol. 41

No. 2

Published by

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO  
620 UNIVERSITY AVENUE, TORONTO



## BEYOND ALL EXPECTATION

IN a recent radio report on provincial affairs, Ontario's Prime Minister, the Hon. Leslie M. Frost, stated that this province is growing so rapidly that "what is adequate in planning for today becomes inadequate tomorrow."

The province, he said, has just passed the 5,000,000 mark in population, and another 1,000,000 will be added within the next five or six years. Last year more than half of all immigrants coming to Canada settled in Ontario and approximately 130,000 children were born here. This has, of course, profoundly influenced the power requirements of the province.

"One would have thought that the mighty developments on the Ottawa River, and at Niagara and elsewhere (built by Ontario Hydro) would have placed us in a substantial surplus position. Such is not the case. Not only are we turning to the St. Lawrence for additional power — a project which, we hope, will be commenced this year — but to atomic energy (*Ontario Hydro News*, November-December, 1953), and now to natural gas from Western Canada," Premier Frost said.

Speaking in similar vein at the recent annual meeting of District No. 4 of the Ontario Municipal Electric Association in Toronto and at a combined meeting of Districts 7 and 8 of this Association in Windsor, Hydro Chairman Robert H. Saunders referred to the Commission's "battle" with the problem of keeping pace with "prosperity and a higher standard of living" for Ontario citizens.

For example, Mr. Saunders, in his recent addresses, quoted his announcement on September 2, 1948, that the Commission's construction program totalled \$320 millions. Today, less than five years later, Ontario Hydro's construction program exceeds \$1,228,000,000, not including the St. Lawrence development. Dealing in terms of generating capacity, the Hydro Chairman recalled that in 1948, Hydro anticipated an increase in resources of some 1,365,000 horsepower. In the interim, it has been necessary to revise these figures at frequent intervals until today the program makes provision for raising plant capacity by 3,745,700 horsepower or 144 percent over the 1945 figure.

In conjunction with its frequency standardization program, 120,000 more customers and 1,293,000 more frequency-sensitive items must be changed over to 60-cycle operation than were estimated in the original 1947 program.

These changes in Ontario Hydro figures over the past few years are not due to errors in estimating, they are simply the reflection of a great process of provincial expansion that has surpassed all expectations.



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Authorized as second class mail,  
Post Office Department, Ottawa.

## CONTENTS

River of Tomorrow	Page
Perth — past and present	
Hydro's Ouija Board	
Public Servants	
Foto-News	
"Bare to Centre Bare!"	
Moving Day Ahead	
Along Hydro Lines	
Hydro Home Forum	
Maybe You'll Laugh Too	

## COVER SHOTS

NO, our front cover this month doesn't show a confused telephone repair man. He is engineer William Mauser, of Ontario Hydro's Planning Division, at the "plug-in" board of the unique Network Analyzer. A story of this unusual device and the important part it has played in the past few years in forecasting Hydro's future power requirements appears on page 14. Installations such as the one on the back cover this month are partially responsible for the spectacular increase in power demands since the end of World War II. It is one of the large processing units at the new Maitland Works of Canadian Industries Limited—one of Hydro's biggest direct industrial customers in Eastern Ontario — which has made Canada practically independent in the manufacture of nylon yarn.

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*THIS MONTH* we salute the Town of Perth and its progressive citizens. While looking eagerly to the future, Perth townsmen are apt to recall with a touch of justifiable pride their predominantly Scottish ancestry. For the edification of the visitor, too, they will point to their fine heritage of stone buildings, such as St. James Anglican Church above, which still grace many of the town's beautiful streets. Erected in 1861, this venerable but still beautiful Gothic edifice is typical of numerous buildings in Perth constructed by Scottish stone masons who came to Canada many years ago to put through the historic Rideau Canal. When they completed their task they moved on to Perth, where, today, we still find many beautiful examples of their craftsmanship carved from a free stone quarry near this Eastern Ontario town.



# RIVER OF TOMORROW

After many years of dreaming, planning, and exhaustive crusading Ontario Hydro and the whole of Canada impatiently await the final "green light" on the great St. Lawrence Seaway and Power Development

*by Michael Young*



**WHITE WATER** marks the St. Lawrence Long Sault Rapids which will be eliminated when power dams are built downstream. Ship is by-passing Rapids via 14-foot maximum draft Cornwall Canal.

**F**OR 32 years the subject of power from the International Rapids section of the St. Lawrence River has been very much Ontario Hydro's business. It has been a matter of concern to every Chairman of the Commission since Sir Adam Beck, the first to hold that office.

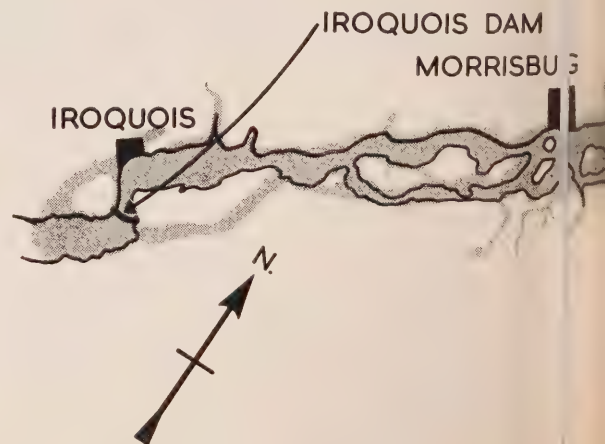
In a pamphlet, published in 1925, Sir Adam "Examined and Exposed" some "Unjust and Harmful Proposals" which had been advanced in connection with financing power and navigation development on the St. Lawrence River.

In Sir Adam's pamphlet the note of urgency about the need for St. Lawrence power—which has become a feature of addresses delivered by the present Chairman, Robert H. Saunders—was lacking, but there is no mistaking Sir Adam's conviction about the importance of the development—even in 1925.

"The municipalities of the Province of Ontario", he wrote, "maintain they have the right to develop their share of the water power in the International portion of the St. Lawrence River in order that an adequate supply of electrical energy may be available to meet the municipal, domestic, commercial and industrial needs of their citizens."

Under Sir Adam's Chairmanship, Ontario Hydro began extensive studies of the International section of the river shortly after the first World War. In 1921, Hydro submitted the results to the International Joint Commission—the first formal

**POWER PATTERN:** Artist's sketch of the St. Lawrence power development area. Shaded portions show the anticipated extent of flooding. Earth dikes, in the vicinity of the closure area, will arrest the flooding at certain points.







statement of the power possibilities of the International Rapids section of the St. Lawrence.

The IJC's reaction was favorable. A Joint Board of Engineers was established and, on the basis of its report, the St. Lawrence Deep Waterway Treaty—calling for joint Canadian-United States development of the power and navigation potential of the river—was signed by representatives of both governments in 1932.

#### Long Series of Arguments

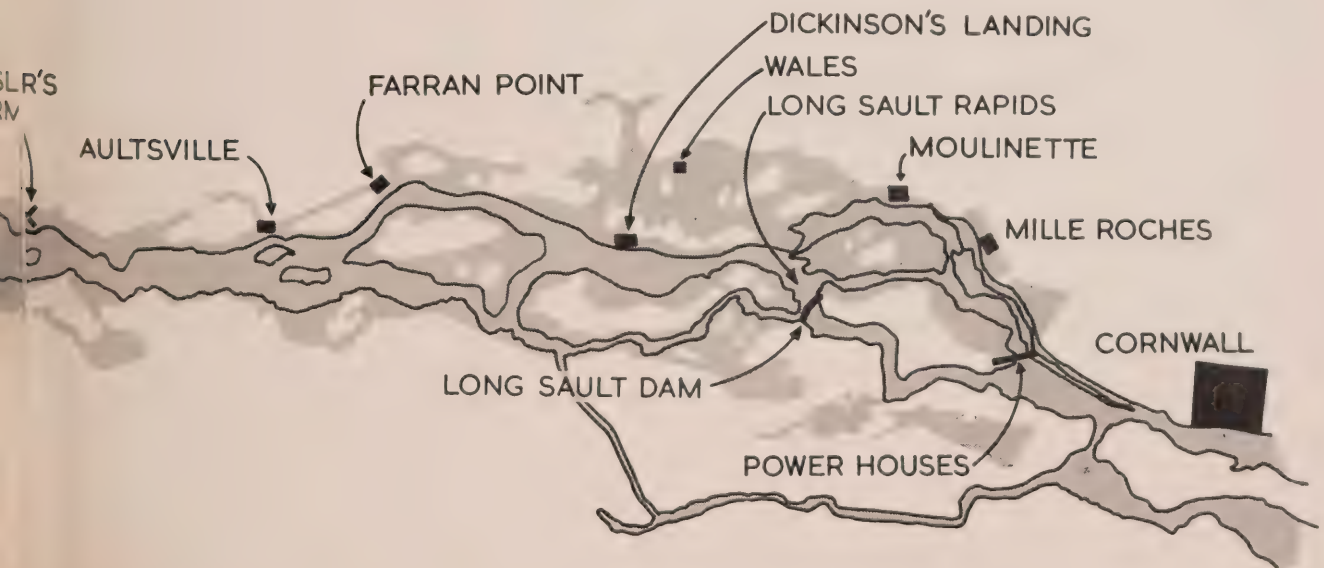
This was expected to be the first step in a great development, but instead it marked the beginning of a long series of heartbreaking arguments, proposals, and counter-proposals, reflecting, more than anything else, the conviction of evidently influential interests in the United States that the development would hurt their businesses.

The St. Lawrence Deep Waterway Treaty was turned down by the United States Senate in 1934. Seven years later another formal attempt was made in the Great Lakes-St. Lawrence Basin Agreement. The Agreement, however, met with no more

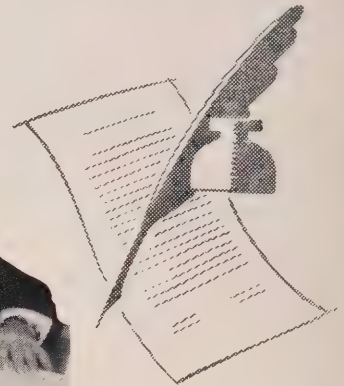
*(Continued on page 4)*



HELICOPTERS (upper photo) have been called into service in Ontario Hydro's St. Lawrence River Surveys. Checking aerial photo of Long Sault Rapids (lower photo) are, l. to r., W. E. Roberts and J. C. Strang, Ontario Hydro, and James Greenshields, pilot.







Ontario Hydro's great expansion program, which now involves development of 15 new power sources over an 11-year period, will have increased capacity by 144 percent by 1956. But, even with this record program of expansion, the Commission has had difficulty in keeping up with the power demands of the ever-growing industry and population of Ontario. And the St. Lawrence is the last major undeveloped source of hydro-electric power within economic transmission distance of the large load centres in the province.

In December, 1951, proponents of the project took official

With Canada committed to undertaking the navigation development by herself (in conjunction with United States)





ONTARIO HYDRO and New York State Power Authority representatives confer at the site of the Iroquois Dam as represented in Hydro's model of the St. Lawrence Power Project. Left to right are Dr. Otto Holden, Hydro's Assistant General Manager—Engineering; Richard Hazen, Franklin J. Leerburger, and Dr. Constantine Belousow, consulting engineers, New York State Power Authority, and Hickman Powell, Authority Trustee.

Canadian development of the power resources), and Ontario Hydro named as the Canadian entity for the joint power development, there remained, by 1952, only the problem of naming a United States entity to share the responsibilities and the subsequent benefits of the project with Ontario Hydro.

This has involved a considerable number of hearings, first before the International Joint Commission, which, in October, 1952, ruled favorably on the applications of the Canadian and United States Governments for permission to develop the power resources of the river, and later, before the Federal Power Commission in the United States on the application of the New York State Power Authority to be authorized to proceed with the United States share of the work. In July, 1953, the Federal Power Commission ruled in favor of the New York Authority's application and subsequently turned down appeals by opponents for a rehearing.

The International Joint Commission ruling, incidentally, and the FPC ruling as well, were made on the understanding that Canada would begin work on the navigation phase of the project as soon as construction on the power development was underway.

The New York Authority has now accepted its license, and has been named by President Eisenhower as United States entity for the development. The Federal Power Commission ruling, however, is being tested in the United States courts. An appeal against the F.P.C. ruling was filed by the Lake Ontario Land Development and Beach Protection Association.

Inc., the Central Pennsylvania Coal Producers' Association and the rejected applicant, the Public Power and Water Corporation of New Jersey.

However, on January 29 this year, the U.S. Court of Appeals unanimously affirmed the action of the Federal Power Commission in granting a license to New York to be a partner with Ontario Hydro in the power development. But, at least one of the aforementioned groups has indicated its intention of taking its case to the Supreme Court of the United States.

#### Road Is Clear

Thus, though there are, as Premier Frost said recently, some stop lights on the way, the road is clear. Meanwhile Ontario Hydro is making the best possible use of the enforced waiting time, advancing preparations in all phases—legal, administrative, engineering, etc — as far as possible while waiting for the green light.

In the area of the development itself, Commission survey crews have been busy for almost two years. There are about 100 men investigating the physical secrets of the river and the terrain. The information they are gathering, added to that acquired in major Hydro surveys in earlier years, is being used in the construction and proving of the Commission's hydraulic models of the International Rapids Section of the River at the A. W. Manby Service Centre in Islington.

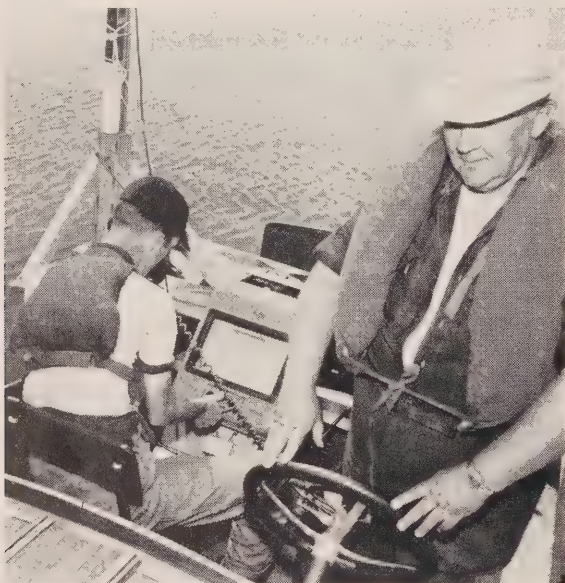
Since these models are neither mere toys nor displays; since

*(Continued on page 6)*





HYDRO survey crews meter rate of flow in key section of river. Strategically-placed gauges record water level variations.



USING echo sounding oscillators two survey men are obtaining profile of riverbed in area of the proposed power development.



ON SHORE Ontario Hydro crew drills in the powerhouse area. Cores of rock are secured for analysis by Hydro geologists.

they are to be working models on which Hydro engineers can put the calculations of their slide rules to actual tests, a high premium is placed on accuracy in gathering of the required basic data, and in the construction of the St. Lawrence scale replicas. Much of the survey work being carried forward, present, actually represents a check on information acquired earlier surveys.

#### Recorded on Fathometer

In boats piloted by experienced rivermen, Hydro surveyors cross the river at regular intervals — fifty yards in the actual construction area, one-half mile elsewhere — exploring the river bed by means of echo sounders. These produce an accurate picture of the bed which is traced automatically on the fathometer.

In the area of the Long Sault Rapids, where a detailed picture is required, the echo-sounding method cannot be used. The rough water in these rapids makes navigation impossible for a small sounding boat and the aeration in the water makes the echo sounder useless.

The Hydro crews are working out an aerial attack on this problem. They experimented with "kytoons" (meteorological balloons), a shore-to-shore cable, and finally settled on helicopters as the best method.

The surveyors are also metering the flow of the river in key sections and have spotted gauges at strategic points between Cornwall and Prescott to record variations in the water level. This is the information that, after sifting, correlating, and checking against existing data, is used in the construction and proving of the hydraulic models at the A. W. Manby Service Centre.

The work of the surveyors is not confined to the actual river. On shore, in the areas of the proposed dams and powerhouse, other field teams are doing diamond drilling to a depth of 225 feet, securing rock cores for foundation analysis. These will help determine the best location for, as well as the physical characteristics of the dams and powerhouse. Studies are being made to determine the best location for dikes and also to reveal the dike-building qualities of the soil in the district.

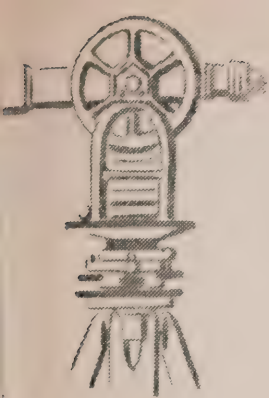
There are three models of the St. Lawrence at Inling, each representing a section of the river. The first represents the river between Ogdensburg and Leishman's Point, the second represents the Ogden Island area, and the third, the dewatering and closure area from Cat Island to a point below the site of the powerhouse. Combined, the three models reproduce about 35½ miles of the St. Lawrence River with one mile on St. Lawrence equal to about 10½ feet on the models.

#### Scale Relationships

The actual scale relationships are as follows: horizontal, 1 foot to 500 feet; vertical, 1 foot to 100 feet; rate of flow, 1 to 500,000 cubic feet per second; velocity, 1 to 10 feet per second. The vertical scale of the models is exaggerated in comparison with the horizontal scale so that the effect of vertical variations in contour — which are much smaller than the horizontal distances — will not be lost. This also assists in a more accurate representation of the river flow.

The fact that the reproduction is in three sections would appear to be something of a handicap in that the whole development cannot be studied as one unit. However, in addition to the fact that the length of the present building house





the models would have to be tripled to house a single model of the entire development area, there are distant advantages to the three-section reproduction. J. B. Bryce, Ontario Hydro hydraulic engineer, who is in charge of Commission model construction, points out that the single-unit model would hinder detailed study of the specific work areas, while the three-section plan allows study

on each section simultaneously without interference from the work being done on either of the other sections.

Model construction, of course, is done with the precision of lens-grinding. Precision is evident, not only in the sawing of the templates, surfacing, marking of contours, insertion of some 20,000 metal strips to reproduce roughness in the river bed, but also in the precautions taken to prevent foundation settlement, and heaving due to frost.

Hydro has already proven the value of models. Mr. Saunders stated recently that "net savings in construction costs of more than \$5 million are anticipated at the new Sir Adam Beck development as a result of model work on this project."

#### Advisory Committee

A great deal of work has also been done on what the Chairman has described as a matter of "paramount importance" — safeguarding the rights of those people whose property will be flooded as a result of the development. Hydro has established an advisory committee with representatives of the various departments of government concerned. The committee also includes an expert in community planning, and a representative of the Canadian National Railways. It reports to H. D. Rothwell, Ontario Hydro's St. Lawrence Liaison engineer.

The development will provide the opportunity — and the means — whereby the flooded communities can get a fresh start using the most up-to-date ideas on scientific community planning. A suggested residential and industrial plan for the Lawrence area affected by the flooding is being prepared. Mr. Rothwell emphasizes that these are just suggestions that after consultation with the New York State Power Authority will be submitted to representatives of the communities concerned for their opinion and comment. The keynote is progress, but nothing will be crammed down anyone's throat in the interests of progress.

#### Power Conferences

With the Federal Power Commission's endorsement, in July, of the New York State Power Authority's application for a license, an actual start on the power development came closer to reality than at any time in a generation. Preliminary general and engineering meetings between Ontario Hydro and the New York Authority got underway almost at once. To date there have been several major meetings, in New York and in Toronto.

After the long years of delay, disappointment, and — as the power demands of the expanding Ontario economy continued to skyrocket — anxiety — the Commission, with its American partner, is now on the threshold of a development that will raise the St. Lawrence to even greater heights of national importance than it achieved when it was the front door to the New World.



DATA secured by survey crews at site (opposite page) after checking is used in construction of Ontario Hydro models. In foreground is Model 3 (dewatering and closure area of power development phase). Models of other sections in background.



HYDRO "model men" (l. to r.) Keith Henry, Wolf Jenkner and Cliff Davidge measure rate of flow of St. Lawrence in the model. Rotation of submerged propeller registers on meter from which readings are taken to determine the actual velocity of the water.



# PERTH - past and

Flourishing Eastern Ontario Town—a Hydro Municipality

Since 1918—Reflects the Impact of Electric Power



**R**ECENT destruction of the Glen Tay powerhouse, first source of power for the Town of Perth, calls to mind what a dominant role electricity has played in the history and progress of that flourishing municipality.

This station, in partnership with its sister powerhouse, both located on the Tay River, a short distance upstream from Perth, began supplying the modern electrical needs of the town as far back as 1897. These twin plants supplied 13 cycle power, transmitted at 2,300 volts to operate the pumps of the town's water system. Consumption of electricity was so limited in those days that meters were deemed unnecessary, and customers were charged a flat rate of \$2.00 per year for a 16-candlepower carbon lamp. To build up load, customers were given free light bulbs in exchange for old ones.

These plants were operated until 1918 when they were acquired by Ontario Hydro and Perth made a contract for the purchase of power from the Commission. At that time the town's load was only 350 horsepower. Today the municipality has a peak demand of 3,600 hp.

Diversification of Perth industry, now comprising some 22 concerns, has provided a source of dependable employment for hundreds of local and district men and women. The town has an excellent record of employee-employer relations which, in turn, has developed loyal employees and encouraged the establishment of new industries.

Among the leading firms is the Andrew Jergens Company Limited, a nationally-known as the makers of Jergens and Woodbury's cosmetics, perfumes and toilet articles; Henry K. W.

PERTH Town Hall erected in 1863 is typical of many of the older buildings in that municipality. Offices of Perth Public Utilities Commission are located on ground floor.



# resent

by Herbert B. Wood

pole Company Limited, manufacturers of drugs and pharmaceutical products. The Dr. Locke shoe and Naturalizer shoe are products of the Perth Shoe Company. The Code Felt and Knitting Co. has two mills that produce woollen goods, men's socks and felt products. At Tayside Textiles they make woollen cloth, tweeds and worsted material. And at Springdale Mills nylon cloth is produced. The Land O'Lanark Creameries turns the milk from surrounding farms into golden butter; the Tri-Valve Company, a new British firm, produces valves, and the Perth Concrete Products plant supplies important building blocks and tile.

## Assets Increase

A factor behind Perth's popularity as an industrial location is an abundance of cheap Hydro power. The facts speak for themselves. Perth's domestic, commercial, and industrial customers have had to increase in rates for fifteen years. At

the same time, local utility assets have increased 58.7 percent during the period 1938-1952—36.3 percent since 1945 for a total value of \$349,309.49, plus an equity in the H.E.P.C. System of \$167,417.74.

Indicative of the town's growth in the past few years is the substantial increase in power consumption. Between 1945 and 1953 the average load jumped approximately 50 per cent.

The average monthly kilowatthour consumption per domestic customer has jumped 61.9 percent; commercial 49.9 percent, and power 25.5 percent.

Perth Public Utilities Commission was formed in 1918 with the first commission consisting of Chairman Wm. B. Hart; Mayor James J. Hands, and John H. Echlin. Robert J. Smith was Manager and Secretary-Treasurer of the

*(Continued on Page 10)*



▲  
**GREAT WAR Memorial Hospital**, with a capacity of 49 beds, was officially opened in 1923. It was the home of Hon. John A. Stewart, one of Perth's noted native sons.

**GORE STREET**, Perth's wide main thoroughfare, graphically contrasts the old, represented by Town Hall (left), and the new — modern, directional-type street lighting fixtures (see close-up view, opposite page).







**PERTH** is noted for its attractive homes, many dating back to the town's early days. The victim of the last duel fought in Canada is said to have been brought here in 1833. ▲



**RETIRED** Perth P.U.C. Manager, R. J. Smith has a keen interest in activities of Perth Museum.

utility until his retirement in 1953 following 35 years' service. (*Ontario Hydro News*: July-August, 1953.) Prior to that he had been Manager for 21 years of the Canadian Electric & Water Power Company, Limited, which handled power generation and distribution for Perth.

The present Manager is J. A. Higgins, while serving on the Commission are Chairman J. L. Walsh, D.D.S., with 18 years' service; Mayor John Pennett, 4 years, and Charles Wallace with 5 years. Miss Tena Harvey was recently appointed Secretary-Treasurer.

Coincident with the report in the *Perth Courier* of the serious fire at the old powerhouse which went into operation back in 1897, was a rekindling of memories in the minds of many Perth citizens.

### Mammoth Cheese

For example, there was the mammoth cheese made in Perth, and weighing 11 tons, which created a sensation when it was exhibited at the Chicago World's Fair in 1893. It took three days to collect enough curd to make the cheese and required the equivalent of one day's milk output from a fabulous herd of 10,000 cows.

Encased in a mould of boiler plate, six feet high and 28 feet across, its progress from Perth to Chicago resembled the journey of some prince or potentate with great crowds gathering at the stations all along the line. It was carried on a train dubbed "The World's Fair Cheese Train." After the big fair was over the

cheese was shipped to Liverpool, England, for Sir Thomas Lipton.

And beyond living memory, is the story of the fatal duel in 1833, one of the last ever to take place in Canada. Two young law students, Robert Lyon and John Wilson, fought to the death with duelling pistols on a June morning. When the smoke had cleared, Lyon lay mortally wounded on the ground. Wilson, though brought to trial, escaped with minor punishment for the "affair of honor." He later married the lady and went on to become a Superior Court Judge at London, Ontario. Lyon was buried in a now unused cemetery on the town's outskirts, a headstone on the grave recalling the tragic circumstances.

### Scottish Founders

Assuredly this eastern Ontario municipality which, today, has a population of some 5,034, has a history bright with tradition. Its Scottish founders, with more than just a mark of affection for the land they had left behind, named their hamlet Perth and the river on whose banks they settled, the Tay.

It all began in the year 1815 when some Scottish and English gentlemen approached the Colonial Office with the idea of settling a number of Scottish families, chiefly from the Highlands, in Upper Canada. The settlers were offered free passage and each male adult a grant of 100 acres of land. Free provisions were provided, not only for the voyage, but also after the arrival of the settlers in

the colony, and until such time as the land could be made to support them.

Under the plan, over 300 men, women and children set sail from Greenock or the Clyde in May, 1815, and landed at Quebec on September 4. They, at once journeyed up the river as far as Brockville where they spent the winter of 1815-16 in temporary huts. A party of explorers from the group visited the present site of the Town of Perth late in the autumn to "spy out" the land for their kindred. In April, 1816, the first land was taken up by the settlers.

To each group of four families was given a grindstone, a crosscut saw and whip saw. Each family received an adze, a hand saw, a drawing knife, axe, or shell auger, two gimlets, door lock and hinges, scythe, reapinghook, two hoe, hay fork, skillet, campkettle and one blanket for each of its members.







ADMINISTRATIVE headquarters of Lanark County at Perth which houses county offices and courtrooms for sittings of Ontario Supreme Court assizes and High County Court hearings. ▲



▲ ONE of Perth's chief industries is the Andrew Jergens Company internationally-known maker of cosmetics, perfumes and toilet articles. New addition was completed in 1937.

With the end of the Napoleonic wars disbanded soldiers from some of the famous British regiments arrived in June, 1816. They were given land grants according to their rank from 100 to 1,600 acres. Many of these veterans, being pensioners, had small but regular incomes and a small amount of currency was kept in circulation. Veterans of the Canadian Militia, along with their wives and children, also settled in Perth at this time.

Their first year was one of particular hardship and privation. In 1817 the potato crop was destroyed by frost, and rust ruined the wheat crop. Some families were forced to live on wild leeks and other herbs found in the woods until the Government came to their aid with rations, thus averting famine.

And so from these rugged beginnings

developed the modern town of Perth and from these people . . . humble and resourceful in the face of pioneer vicissitudes . . . was forged the character of the townsfolk.

#### Stone Buildings

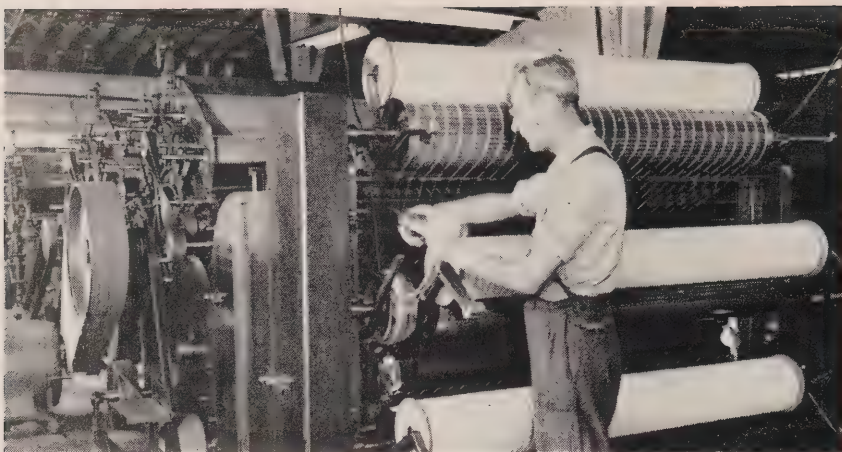
To even a casual visitor, Perth's pioneer ancestry becomes evident in the many stone buildings . . . so typically Scottish . . . which stand as four-square as when they were built a century ago. They were constructed chiefly by Scottish stone masons who came to Perth after completing the locks of the Rideau Canal. An excellent example of such a building is the residence of Cyril Indewick on Craig Street. Legend has it that young Lyon was carried here by his friends

*(Continued on page 12)*

PERTH has two public schools, one separate school, and a collegiate institute. Here Constable F. H. Bell directs noon traffic at the new Stewart Public School, named in honor of Hon. John A. Stewart, who donated land.







WITH some 125 employees on its payroll, Tayside Textiles Ltd., is one of Perth P.U.C.'s biggest customers. Shown in this photograph is an electrically-operated carding machine.

following his fatal duel (mentioned earlier in this story), in 1833.

Another example is the town hall, completed in 1863, which typifies the solidity and permanence of the white and cream-colored freestone quarried on the town's outskirts.

Interspersed with these buildings are modern blocks and dwellings. Perth is a town of homeowners, with some 80 percent of the residents owning their homes.

A natural friendly spirit in Perth based on an honest regard for a visitor's welfare, has enabled Perth to build its tourist trade into a major industry.

Located on the main line of the Canadian Pacific Railway, 60 miles southwest of Ottawa, Perth is in the heart of a vacation paradise . . . the Rideau Lake area. The town boasts of "100 lakes within 50 miles," abounding with fish of many varieties and of surrounding woodlands where, in season, the hunter may virtually take his choice of deer, partridge, hare or ducks.

#### Famous Sons

Perth has two public schools, a separate school as well as a collegiate, three banks, seven churches and a modern hospital. In the centre of town is located Stewart Park, with a pleasant stream meandering beneath a rustic bridge. It bears the name of a famous native-son, Hon. John A. Stewart, M.P., Minister of Railway and Canals in 1920. Other men who have brought honor to Perth are Hon. John G. Haggart, M.P., Postmaster General and Minister of Railways and Canals, who represented Lanark County continuously in the House of Commons for over 45 years, and Hon. A. J. Mathieson, Provincial Treasurer of Ontario (1907-1913.)

Perth has a privately-owned skating and hockey arena, and the town operates a number of open-air skating rinks. The curling club has a membership of 120 and is one of the oldest in Eastern Ontario, its records extending back to 1875. A three-sheet, artificial ice rink with a two-storey clubhouse was recently completed. A badminton club, lawn bowling club, and a bowl-o-drome with nine alleys offer additional recreation facilities. The Citizens' Band presents



ANOTHER important Hydro customer is Perth branch of Henry K. Wampole Company, which has been operating there since 1905, manufacturing drugs and pharmaceutical products.



ELECTRICITY plays a key role in the operations at Springdale Mills which manufactures nylon cloth. This is one of a battery of tricot knitting machines.





MEMBERS of the Perth Public Utilities Commission for 1954 include, left to right, Commissioner Charles Wallace, J. A. Higgins, Manager; Miss Tena Harvey, Secretary-Treasurer; Mayor John Pennett, and Chairman Dr. John L. Walsh.

weekly concerts in Stewart's Park during the summer months. There is an up-to-date library which also houses a unique collection of early district Canadiana. This museum was founded by the late Archibald M. Campbell, mining engineer and Honorary Curator, and was officially opened in 1937.

**Perth Fair**

The Perth Fair has been a big annual attraction for over 100 years—ever since 1846. A local citizen recalls that he arose at five o'clock every morning, from

June to September, and travelled more than a mile to bring the cows in from pasture for the morning milking, in order to earn 50 cents to attend Perth Fair. He also recalls planting and tending a widow's garden all summer for a dollar, the extra money being required to attend the Marks Brothers' Show, on the evening of the Fair, for it was said locally that one was not considered to be a man until he had been permitted to stay and see Marks' Show, while the rest of the family went home to do the evening chores. It did not matter that

he had to walk 11 miles after midnight, or that his hair rose when he heard those pursuing footsteps as he passed along the loneliest part of the road. For those who have once visited Perth, there remains in their memory, some word . . . some little kindness . . . some token of old-fashioned hospitality which has been offered unconsciously and sincerely by this community. And like a magnet drawing the visitor is the appropriately Scottish invitation "Will ye no' come back again?"



MEMBERS of Perth P.U.C. mechanical and office staff, front row, l. to Harry Sinclair, Ormond Paul, Oscar Skaug, Robert Braley, Henry Bnall, Harold Batoff, Robert Cameron; back row, l. to r., Roy Armstrong, Willard Huddleston, Misses Jean Miller, Norma Gree, Tena Harvey, R. J. Smith (retired in 1953 after 56 years as Manager of Perth's electrical system), and James Balfour pose for photograph.



# HYDRO'S

## OUIJA BOARD

Unique Network Analyzer Performs Amazing Feats

And Saves Hydro Customers Thousands of Dollars



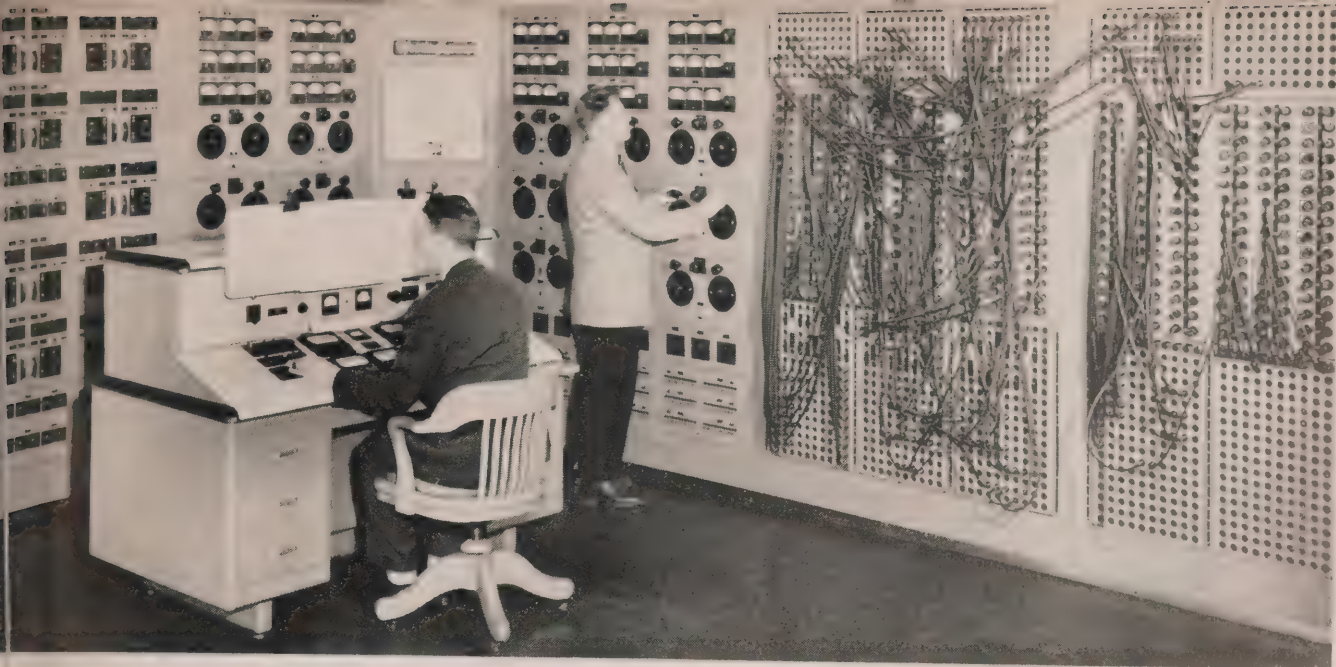
IT functions like some super brain. Engineers of Ontario Hydro refer fondly to it as "The Ouija Board." It can simulate 230,000 volts faster than a slide-rule can compute square root; it can reduce Hydro's greatest power generating stations to a quivering mark on an instrument dial; and, given certain basic facts, can tell what the electrical future is in a given area, say five years from now.

In truth, it has no mystic qualities at all—only the unassuming scientific name of Network Analyzer. Yet, the room in which it is housed at Hydro's University Avenue Head Office in Toronto, radiates the suggestion—especially to the layman—of some latent but dynamic power against the background of the sublimity of the operating equipment.

Like a doctor uses x-ray to be exact in his diagnosis of a patient's ailment or an aeronautical designer submits a scale model of a new aircraft to wind tunnel tests to verify the accuracy of his design and theory, so Hydro engineers use this special instrument for studying and arriving at the most efficient and economical plans associated with engineering every change and improvement required in Hydro's vast and complex power system of generation sources and transmission facilities.

HYDRO engineers W. R. Blakely, seated, and William Mauser make adjustments on the Analyzer's generator panel to simulate conditions on a planned group of generating sources to determine influence on the system.





**GENERAL** view of Network Analyzer, which, on a miniature scale, can duplicate any portion of Hydro's province-wide electrical system. Here, Hydro engineers, Paul Dandeno, seated, and Fred Iley are "previewing" conditions likely to be experienced in a given set of circumstances.

In a nutshell, the Network Analyzer can be made to actually duplicate, on a miniature scale, the Hydro electrical system in any specified area, large or small, of the province. For example, if a new transmission line is needed to meet load growth in an area, Hydro engineers can, before any work is undertaken, precisely determine not only the best location for that line, but the type and size of line required.

"This apparatus," said Hydro Chairman Robert H. Saunders, "is accomplishing, in a matter of hours, work that would otherwise take weeks. It is saving the Commission thousands of dollars in materials and man-hours of labor and, at the same time, is providing our engineers with accurate answers to the ever-present and vital problem of maintaining dependable supplies of power to our customers, regardless of where they are located in the province-wide Hydro operation."

In appearance, the Network Analyzer resembles a cross between a giant telephone switchboard and a high-frequency radio set. It is the only one in operation today in Canada and was installed by Hydro in 1942.

It has played a key role in Hydro's tremendous expansion program, in which 13 new power sources have been placed in service since 1945, with two more currently under way. In every case before construction of a new plant was undertaken, Hydro engineers—using the Network Analyzer—set up a miniature replica of the electrical system into which power from the plant would flow. Re-

presented to scale on the Analyzer were the electrical characteristics of all generators, transformer banks, voltage regulators, transmission lines and municipal and industrial loads of that system. In this way, Hydro was able to assure that when the plant was connected into a transmission network, the most economical and satisfactory operating results would be achieved.

#### Determines Required Facilities

At the present time, among the many problems Hydro engineers are studying by means of the Analyzer, is determining what facilities are required to tie Hydro's 14th new generation source, the Sir Adam Beck-Niagara Generating Station No. 2, into the Southern Ontario system. This year, the first five units associated with this development will be in service, with the first stage (representing 1,428,000 horsepower) scheduled for completion early in 1957. Later, the apparatus will be used in the work of connecting the 15th new power source, the recently authorized Manitou Falls Generating Station on the English River, into the Hydro's Northwestern Division system.

Tying-in to the Southern Ontario system a huge project, such as Sir Adam Beck No. 2, would involve years of trial or error, and the waste of thousands of dollars were it not for the latest scientific developments being utilized by Hydro.

#### Better Customer Service

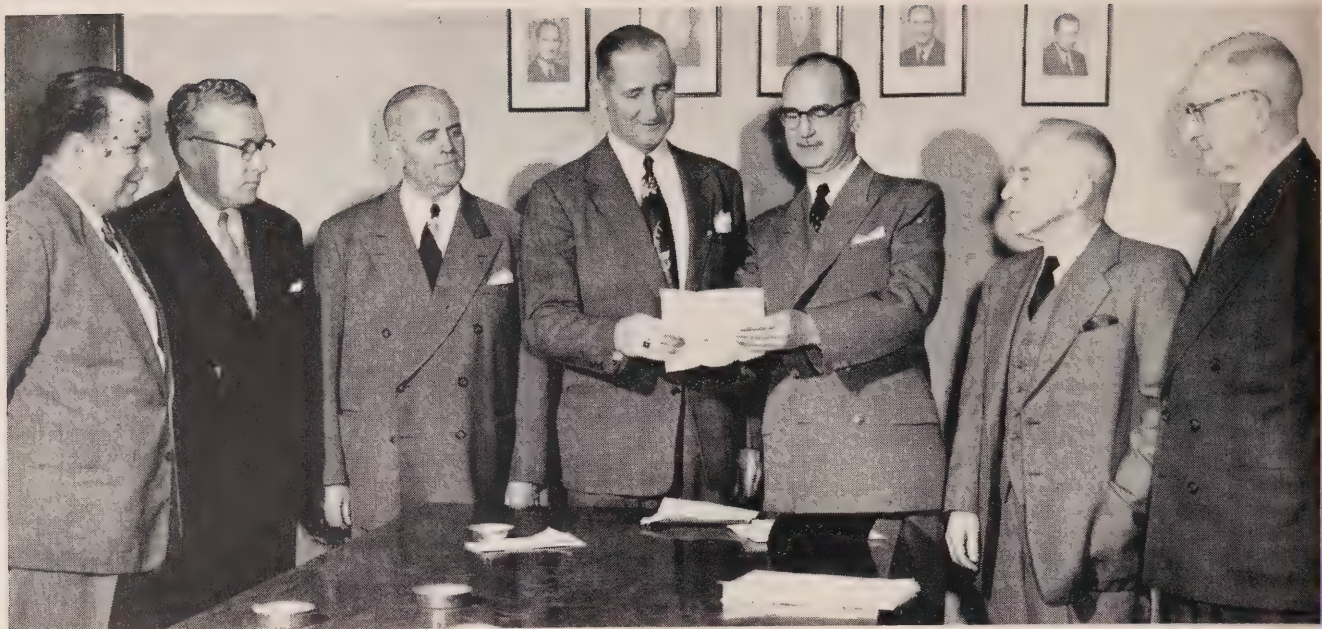
In all Hydro's planning of new transmission facilities, or for improving existing transmission systems to give better customer service, the Network Analyzer is permitting Hydro engineers to determine, with a minimum loss of time, and a maximum degree of accuracy, both the problems—and their solutions—associated with such work.

The problems are many and varied. Lines must be planned so as to meet future load growth in the area they serve; they must be designed to withstand a high degree of shock from adverse weather conditions, such as lightning; they must be capable of handling unexpected heavy loads in the event a key line is knocked out of operation by storm, thus assuring Hydro customers receive a high measure of service security at all times; voltage fluctuations must be kept to a minimum; proposed transformer and distribution facilities in an area must be investigated in advance to assure they are adequate to handle new loads which will be placed upon them.

For those who are not electrical engineers, it is difficult to appreciate the technical features of the Network Analyzer. To the layman, the Analyzer has

*(Continued on page 27)*





▲ AT its inaugural meeting, Windsor Utilities Commission elected Warren P. Bolton, centre, for his fourth year as Chairman. Left to right, are Commissioner M. J. Brian, Assistant General Manager J. E. Teckoe, Jr., Vice-Chairman Gordon Fuller, Mr. Bolton, 1953 Chairman William Anderson, General Manager J. Clark Keith, and S. Howard Gillett, Secy.

# PUBLIC SERVANTS

**R**EPORTS of inaugural meetings, appointments to committees, naming of chairmen, and reviews of progress in hundreds of urban and rural municipalities across the province have dominated the news and editorial pages of Ontario daily and weekly newspapers in recent weeks. A substantial amount of space has been devoted to the activities of that particular field of municipal operation administered by hydro-electric or public utilities commissions.

Today, in the 32 Hydro cost-contract municipalities of the province hundreds of public-spirited citizens have taken up the task of serving their respective communities for 1954 on commissions handling such essential services as Hydro and water. Many of them are serving for the first time, even more have impressive records to their credit. Unfortunately lack of space precludes publication of photos of all the local Commissions, but as a salute to this large group of public servants, we present herewith a representative cross-section:



▲ AT London, members of the 1954 Public Utilities Commission, including, l. to r., Campbell C. Calder, J. Stewart Killingsworth, both new members, Chairman J. Bevan Hay, General Manager V. A. McKillop and Dr. C. H. Reason, watch Glen Mills operate large lathe during a tour of the extensive properties of London P.U.C.





INAUGURAL meeting of Brantford Public Utilities Commission heard newly-elected Chairman J. H. Gillies predict completion of frequency standardization for the city in 1954. Seated, l. to r., are Commissioner Dr. J. H. Moyle, Vice-Chairman W.

S. Pettit, Secretary E. L. Gothard, Chairman Gillies, Commissioners L. F. Snider and K. V. Bunnell, and Mayor Reg. Cooper. Behind are Manager W. R. Catton and Assistant Manager Wm. Secord. Mayor Cooper was formally welcomed by Mr. Snider.



MEMBERS of Niagara Falls Hydro-Electric Commission, seated l. to r., Commissioner Thomas Barnes, 1954 Chairman Stanley E. Simpson, and Mayor Ernest M. Hawkins; standing, Secretary-Treasurer Norma Crane and Manager J. A. Williamson, studied the frequency standardization program during first meeting.



WILLIAM Watterson was elected Chairman, Welland Hydro-Electric Commission, for eighth term at the inaugural meeting. Seated, left to right, Commissioner Fred Bradley, Mr. Watterson, and Mayor Armour McCrae. Standing, l. to r., are Assistant Secretary Howard Guenther, Manager T. W. Houtby, and Engr. A. W. Pratt.



# FOTO-NEWS



**OFFICER FETED**—Retiring as Office Manager of London Public Utilities Commission recently, Charles W. Eastwood was honored with several presentations and an informal complimentary dinner. Mr. Eastwood, centre, is shown receiving a pen and pencil set from his successor, Frank Wilson, right. Left is V. A. McKillop, General Manager, London P.U.C., who presided at the complimentary dinner attended by Commissioners and department heads. Mr. and Mrs. Eastwood were also guests at informal party when his staff presented him with an engraved silver tray. Mr. Eastwood joined the London P.U.C. staff in 1933, being promoted to the position of office manager four years later, succeeding Oliver Ellwood who was a member of the London staff for 50 years.



**RECEIVES SILVER TRAY**—George R. "Cap" Davis, who resigned recently as General Manager of Ottawa Hydro Electric Commission to accept a similar position with Kingston Public Utilities Commission was honored recently at complimentary dinner tendered by Commissioners of Ottawa Hydro and members of Ottawa City Council. As a tribute to his 16 years of service to the Ottawa Commission, he was presented with inscribed silver tray. Presentation photo shows, left to right, Chairman Stan Lewis, Mayor Charlotte Whitton, Commissioner, L. L. Coulter and Mr. Dav



**DISTINGUISHED VISITORS**—Most U. S. citizens are amazed by the remarkable engineering and construction projects now being undertaken in Canada. This observation was made by Franklin D. Roosevelt Jr., U.S. Congressman for New York City, and son of a former U.S. President, the late Franklin D. Roosevelt, when he visited Ontario Hydro's giant Sir Adam Beck-Niagara Generating Station No. 2 development, now well advanced in construction. He said that this project indicated the manner in which Canada, and especially Ontario, was harnessing its power resources to meet the great industrial expansion taking place in the country. He was conducted around the power project by William M. Hogg, Assistant Field Project Engineer, and Charles G. W. MacIntosh, Niagara Regional Information Officer. In photo, right, Mr. Roosevelt is seen with Mr. Hogg, at the entrance to one of the access shafts that descend into the twin 5½-mile hydraulic tunnels to serve the big development.

A tour of Ontario Hydro's mammoth 1,828,000-horsepower Niagara power project was arranged recently for Hon. Lester B. Pearson, Canada's Minister for External Affairs. "Magnificent" was the word Mr. Pearson used in describing his impressions of the giant new project. "If the development were three or four thousand miles away, we would be chartering planes and trains to take people to view this great power construction job," Mr. Pearson declared. Mr. Pearson was conducted over the project by Dr. Richard L. Hearn, Hydro's General Manager and Chief Engineer; Gordon Mitchell, Project Manager, and William M. Hogg, Assistant Field Project Engineer. In the photo, below, the group of distinguished visitors is shown inspecting the construction of the



new powerhouse. Left to right are: Harry Oldham, United Kingdom Trade Commissioner, Toronto; Sir Archibald Nye, British High Commissioner to Canada; Hon. Mr. Pearson; Dr. Hearn; Mr. Hogg, William L. Houck, M.P., Niagara Falls, N. L. Hibbs, Assistant to Mr. Oldham, and Mr. Mitchell.





*"Bare to*

*Centre Bare!"*

**"THE** Department of Highways reported at seven p.m. to-night that storm conditions in Southern Ontario have abated and all main highways are bare to centre bare!"

Those important words, spoken by a radio announcer, or occupying a prominent place on the front page of an Ontario daily newspaper, are familiar to most citizens of this province.

But behind them is a story of efficient, painstaking co-ordination, illustrating another useful role Hydro plays in modern-day living.

The task of gathering and co-ordinating road reports from all over the province is one of several important services rendered by the Ontario Department of Highways.

Keeping pace with the demands on this service could pose a tough problem in communication, if past methods, using only telegrams, were still in vogue. And doubly so, with daily telephone inquiries

coming in at the rate of two or three every minute during bad weather.

#### Linked by Teletype

Today, however, 12 of the Department's 18 division offices in Southern Ontario, and one at North Bay, are connected by teletype, an electrical communications device now being widely used. From November to April, reports on road and weather conditions are made six times a day by each division within the circuit to all the others. The offices at Fort William and Kenora report to Head Office twice daily by telegram. Blind River, Sudbury, New Liskeard and Cochrane wire or telephone their reports to the North Bay office at six-hour intervals and this information is transmitted by teletype to other divisions.

Correlating all these reports of conditions on the 10,500 miles of Ontario highways is the Road Information Service office of the Department's Public Relations Branch. Located on the third floor of the East Block at Queen's Park in Toronto, this modest office is a scene of bustling activity during the winter and early spring with its cacophony of teletypes and jangling telephones.

#### Electric Reperforators

Here with three teletype machines, and three electrically-operated reperforators—to monitor incoming reports on a perforated tape for later distribution to other divisions—an up-to-the-minute pic-



**REPORTS** on road conditions are received seven times daily during winter months from divisional offices of Ontario Dept. of Highways and co-ordinated by Road Information Office at Queen's Park, Toronto. On the left are three teletype machines with Operator Orval Harron sending out an important message. Behind Tom Magladery, right, are three electric reperforators which monitor messages on tape for transmission to other divisions.

ture of road conditions all over the province is maintained.

For quick reference, road condition during periods of snow or severe icing are plotted on a large wall map, using grease pencil on a celluloid mask. Offbeat inquiries are put on the wire to one of the 12 teletype stations. A reply usually takes less than five minutes.

Working on a 24-hour schedule, seven days a week, staff members not only correlate all road information, but as well prepare releases for the press and radio throughout the day. In addition, an exceptional circumstance is reported immediately.

Communication with divisional headquarters in many parts of the province has been speeded up this year by the installation of radio-telephones in some 200 or more of the Department's maintenance units.

For example, a highway in the vicinity of Lindsay has been blocked by snowstorm. The plows finally succeed clearing the area and traffic can proceed. This information is transmitted to the division office at Port Hope where it is sent through the teletype to the other divisional points. Head Office in Toronto also telegraphs it to the northern divisions.

Thus, the whole province is linked together by this electrically-operated network.





Architect's drawing of St. Catharines' new public utilities building.

# MOVING DAY AHEAD

## ***St. Catharines P.U.C. awards contract for new two-storey general office and service building***

**W**ITHIN a few months, St. Catharines Public Utilities Commission will move from its present quarters in the city hall to a spanking new building at 29 Church Street, near the intersection of King and Church Streets.

The site, central to all parts of the city, and adjacent to two "through" streets, thus providing easy access to any section of the municipality for line crews, was acquired during the summer of 1953.

With a frontage of 135 feet on Church Street, the property is 320 feet deep running to North Street, the next parallel thoroughfare.

Taking advantage of the fact that the frontage on the latter street is 14 feet wider than the Church Street end, the St. Catharines Commission made provision for a two-storey headquarters.

General offices will be located on the second floor with a 100-foot frontage on Church Street, the floor being at street level, requiring no steps. Concrete steel and brick will be used in the construction of this section of the building, for a greater part, although the structure will tastefully combine brick, stone and

glass construction in the Church Street entrance.

The lower storey on the same level as North Street will house the meter department, line stores, facilities for line crews, and garages for trucks. The main volume of line department vehicular traffic will be from North Street.

Modern in every aspect, the new building will feature air-conditioning with humidity control for the general offices and meter department; the air conditioning facilities being an integral part of the up-to-date heating system.

Design of the building will permit expansion to take care of future growth, first by extending the general office back over the stores and meter departments, and, next, by the erection of a third floor.

Completion of the new office and service building, which will handle the entire operations of the St. Catharines Commission, is scheduled for July this year. With a staff of 65, the St. Catharines utility is, at present, located in the city hall. Expansion of other civic departments, due to rapid growth of the municipality in the past few years, has

led to overcrowding, necessitating a separate building for the administration of the city's Hydro services.

The general contract has been awarded to Newman Bros., St. Catharines, while sub-contracts, for the installation of electrical facilities, heating and ventilating equipment, have been let to Sterling Electrical Company, St. Catharines, and Hoople's Heating and Plumbing Limited, St. Catharines.

### ***P.U.C. to Spend \$40,000 In Annexed Areas***

A MINIMUM expenditure of \$40,000 during 1954 has been forecast by H. B. Mattson, Preston Public Utilities Commission Manager, as the local commission plans great expansions, the major portion of which will take place in newly-annexed areas.

Among the expansions planned are a new well which is under way at present on Lang's Farm; lines for water services and sewer equipment, and water facilities for new industries in the area.



# ALONG HYDRO LINES



## Starts 19th Year As Commissioner

JOHN R. PATTISON, who is marking his 19th year as a member of Fort William Hydro-Electric Commission was appointed Chairman at a recent meeting.

Mr. Pattison was first elected to public office in 1914. He has been Chairman of the Fort William Commission on several occasions being elected this year by fellow commissioners, C. H. Moors, and Mayor Gordon Carson. Mr. Moors, who held the office last year, presented his letters of qualification from City Clerk D. M. Martin for another two-year term, having been a member continuously since 1937.

## Elected President Of Safety Conference

WILLS MACLACHLAN, Consultant, Electrical Employer's Association, and formerly Department Head, Employee Relations Department, Ontario Hydro, has been elected President of the recently-formed Canadian Industrial Safety Conference. This group will work on a national basis for the prevention of industrial accidents and the safety of industrial workers covered under the Workmen's Compensation Acts of each province.

## Nipigon Hydro Commissioner Dies

THOMAS ROSS MILNE, 60, a member of the Nipigon Hydro-Electric Commission for the past 15 years, died at his home in Nipigon, after a long illness.

Born at Fergus, Ontario, the late Mr. Milne went to Northern Ontario as a young man, and entered the service of the Canadian Pacific Railway as a telegraph operator.

His service with the C.P.R. was interrupted while he served overseas in the First World War. After the war, he returned to duty with the C.P.R., working at Rossport, Dorion and other stations in the Nipigon subdivision, being appointed as agent at Nipigon in 1925, a position he has held ever since.

"Ross" Milne, as he was known to his many friends, was active in community affairs, serving on the municipal council for several years prior to his election to the Nipigon Hydro-Electric Commission in 1938. He was also a member of the Session of the Nipigon United Church, a member of the Canadian Legion and of the B.P.O. Elks Lodge at Nipigon.

Surviving are his wife, the former Margaret Whent, two sons, T. Howard

Milne of Fort William, and Wm. R. Milne of Nipigon, and one daughter, Mrs. Geo. Gill, of Hornepayne. Funeral services were conducted by Rev. E. P. Johnston, of Nipigon United Church.

## A. W. Bradt Retires at Hamilton

A. W. "ANDY" BRADT, well-known General Manager of Hamilton Hydro-Electric System, retired recently, being succeeded by James W. Hammond, R.I.A. He has been retained as Consultant to the Hamilton Commission for five years.

Mr. Bradt started his Hydro career with the Dominion Power and Transmission Company in 1909, transferring to the employ of Hamilton Hydro in 1912, a year after it came into being.

Highly-respected in Hydro circles, he is a Fellow of the American Institute of Engineers and a member of the A.M.E.U.

His successor, J. W. Hammond, is a native Hamiltonian having been educated in that city where he started his Hydro career in 1926. Prior to his appointment as Assistant General Manager in 1943, he was Chief Accountant, filling the dual role until 1952. He is a prominent member of the Society of Industrial and Cost Accountants.

## ASSIGNMENT IN AUSTRALIA

REFLECTING the esteem in which Ontario Hydro engineers are held among the world fraternity is a project recently undertaken by Dr. Otto Holden, the Commission's Assistant General Manager—Engineering.

Dr. Holden, who, in company with his fellow Varsity graduate and close associate for many years, Dr. Richard L. Hearn, Hydro's General Manager and Chief Engineer, is regarded as one of the world's outstanding hydraulic engineers, has been in Australia for the past few weeks on a consulting engineering assignment with the Snowy Mountains Hydro-Electric Authority.

Representatives of the Authority visited Ontario recently for the purpose of inspecting several of the Commission's hydro-electric installations during which they requested that the services of a senior Ontario Hydro engineer be made available to undertake the assignment. It was pointed out by Authority representatives that Hydro engineers are regarded, in Australia, as outstanding in their field.

The Snowy Mountains Hydro-Electric Authority is a comparatively new organization, and as a result it has not acquired extensive experience in the design and construction of large hydro-electric undertakings. The Authority considers that Ontario Hydro has accumulated great experience in this field during the past 48 years. Dr. Holden's specific assignment has been to examine and report on the Authority's plan and proposed methods for the construction of a hydro-electric project being undertaken in the Snowy Mountains in southeastern Australia.



Dr. Otto Holden  
Assistant General Manager  
— Engineering.





## ADDRESSES ST. THOMAS CLUB

ONTARIO'S phenomenal increase in power demands and Hydro's extensive program of construction to meet these unprecedented requirements in the past few years were vividly described by A. W. Manby, Assistant General Manager - Administration during a fact-filled address to members of the St. Thomas Kiwanis Club on January 25. In his remarks, Mr. Manby, shown at the microphone, flanked on the right by President Jack M. Bissett, and Vice-President William W. Wharry of the St. Thomas Club, described the Commission's Sir Adam Beck-Niagara Generating Station No. 2 project, illustrating his description with colored slides.

## EVOLVE NEW PROCEDURE

ONTARIO HYDRO, in its search for more convenient and economical standardization methods, has evolved a new procedure in connection with certain models of direct-drive washing machines.

While it has always been Commission practice to change over belt-driven washing machines on customers' premises, all direct-drive washing machines were, until recently, taken to Hydro workshops for 60-cycle alteration.

The direct-drive type of appliance has to be almost completely dismantled for changeover, the gearcase removed and the oil drained. It was considered originally that this operation could be more efficiently carried out in a workshop. But following a series of tests, Hydro engineers are now satisfied that any types of direct-drive washers can be changed over right in customers' homes. Any machining work which may

be necessary to the washer will be done in a mobile workshop located in the cutover area.

The great advantage of this new arrangement is that many direct-drive washers will be available for use on the actual cutover day, in some cases within two or three hours of the switch to the higher frequency. Under the former system, customers were without the use of their washers for several days while changeover was being effected in Hydro workshops. Now this inconvenience to customers will be eliminated to a large extent, and the Commission will be saved the cost of transporting the appliance from the home to the workshop and back again. During the remaining period of the program, it is estimated that it will be practicable to change over in customers' homes some 150,000 direct drive washing machines of various types.

## Member Port Elgin Commission 22 Years

C. E. SCHWARTZ, member of the Port Elgin Hydro-Electric Commission for 22 years, who retired recently, was honored by fellow-commissioners with the presentation of a handsome tri-light lamp.

During his introductory remarks, Chairman W. R. Tomlinson said: "Mr. Schwartz has been a most industrious and conscientious commissioner. His careful control of finances was one of the big factors which made it possible for us to erect the fine new Hydro building."

The Chairman expressed the opinion that the Hydro building would not have come into being, had it not been for the efforts of Mr. Schwartz.

In reply, Mr. Schwartz voiced his pleasure at the years spent on the commission: "I little dreamed when I was first appointed in 1922, that Hydro would ever expand to its present scope. It has been a wonderful privilege to have had some share in that development over all these years."

## Fort William Hydro Announces Improvements

FORT WILLIAM Hydro-Electric Commission has announced plans for purchase of new equipment and recent improvements to the local distribution system to provide better service for its customers.

Manager and Secretary A. W. H. Taber stated that a \$75,000 transformer unit, designed to double the capacity of substations on Brock Street to 8,000 kilowatts has been ordered.

Work is nearing completion on the new No. 4 substation. The \$65,000 plant will step down voltage from 22,000 to 4,000 volts and serve as a new point of distribution for the area.

Mr. Taber said the new units are required due to the increasing load in the areas concerned to a point where it had become uneconomical to deliver power to the area at 4,000 volts. Power at 22,000 volts will be brought into the area through the new substation, stepped down to 4,000 volts thus eliminating the long 4,000-volt line previously required from some more remote source.

In 1953, the Fort William Hydro installed approximately 186 new lighting units throughout the city at a cost of \$35,000 to \$40,000.



## Electrical Goods Output Reaches New Canadian High

PRODUCTION of manufactured electrical goods in Canada during 1953 reached a new all-time high with a value of \$850,000,000, an increase of 18 percent over the previous peak year of 1952.

This was reported recently by Canadian General Electric Company President H. M. Turner.

Employment in the industry rose to a new record of 76,000 and, in spite of intensive competition from many highly industrialized nations, particularly in the field known as "apparatus," the industry's output must be regarded as one of the main contributions to the gross national production increase of 5 percent.

However, Mr. Turner pointed out that Canadian manufacturers must carry out searching appraisals of their operations with a view to substantially reducing existing price differences with other trading countries.

One of every six dollars Canadians spent in durable articles in 1953 went toward the purchase of major electrical appliances and labor-saving automatic equipment in the home. The demand for lamps has doubled since 1941.

## Midland Plans New Substation

MIDLAND Public Utilities Commission will construct an indoor substation as the next step in switching to 44,000 volt Hydro supply. The new substation will be of 3,000-kva capacity and of modern enclosed cabinet design. Specifications are now being prepared preliminary to call for tenders.

## Hydro Crew Raises Ancient Anchor

MEMORIES of moonlight cruises and sing-songs when gaily bedecked pleasure steamers plied the waters of Lake Simcoe were brought to mind recently with the discovery of a rust-caked anchor.

Members of a Hydro crew taking soundings for a submarine cable between the mainland and Snake Island snagged an object in 10 feet of water, about a quarter-mile off-shore. A grappling hook was lowered, and hooked to an anchor used by pleasure steamers 50 years ago. It measured five feet along the shank and weighed about 300 lbs.

## TORONTO CHANGEOVER STARTS EARLY NEXT YEAR

ANNOUNCING tentative dates for 25 to 60-cycle changeover in various sections of the city of Toronto and Leaside, Chairman Robert H. Saunders stated recently that the 5-year program—a formidable undertaking, comparable in terms of the number of customers involved, to the work of standardizing 15 other South-western Ontario cities—would get under way in the west end of the city early next year, and be completed in 1960.

The mammoth program, to be carried out in co-operation with the Toronto Hydro-Electric System, will involve the door-to-door changeover of electrical equipment owned by an estimated 158,400 domestic, 27,900 commercial and 6,000 industrial customers. In terms of both customers, and the amount of load that will have to be switched to 60-cycle power, Toronto standardization by itself represents approximately one-fifth of the total Southern Ontario changeover project, a gigantic undertaking affecting a total of 904,700 customers of all classes in cities, towns, villages, and rural sections in a 12,000 square-mile area.

Further illustrating the scope of the job, is the number of domestic customers alone in Toronto to be affected by the project which is greater than the total number in all of the other 15 cities in Hydro's origi-

nal "25-cycle island," with the exclusion of Hamilton.

The number of commercial and industrial customers in the city due for the switch to 60-cycle power is actually greater than the total for all of these cities including Hamilton, and reflects the tremendous growth that Toronto has experienced in recent years.

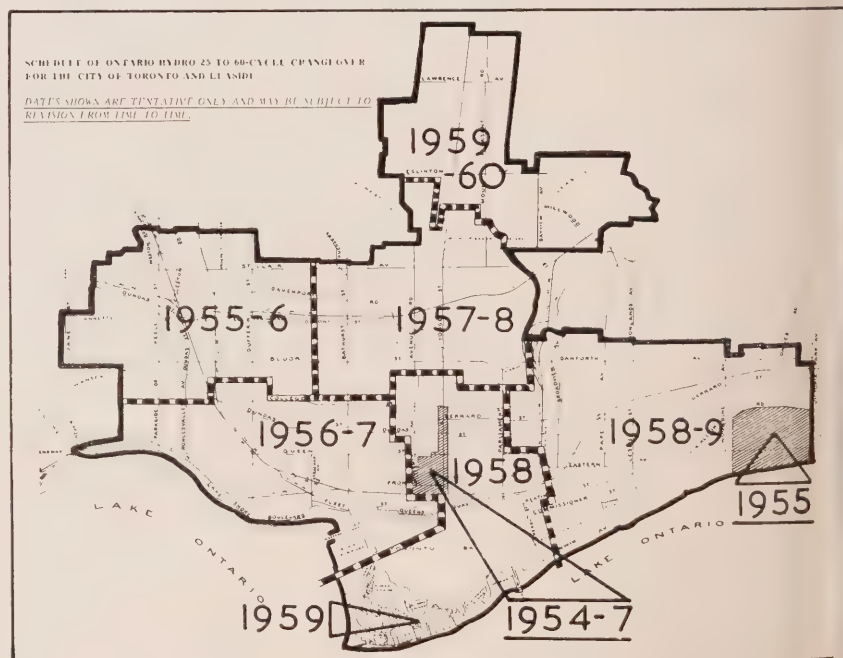
For changeover purposes, the city has been divided into six sections.

### Yonge Street This Year

While general changeover will not begin until next year, Toronto's downtown Yonge Street—one of the busiest commercial centres in Canada—will be switched to 60-cycle power starting on the west side on February 18 this year. It is being done in co-operation with the Toronto Hydro, which will install new underground ducts and 60-cycle cables before new pavement is laid in connection with the Yonge Street subway.

The standardization schedule for the east side of Yonge will depend on removal of T.T.C. street-car rails, since the space allotted to Toronto Hydro as a location for the new 60-cycle cables to serve customers on the east side is directly beneath the present car track, and the cables cannot be installed until the tracks are taken up.

(Continued on next page)





This year will also see the completion of 60-cycle changeover in the adjoining municipalities making up the Toronto Metropolitan area. Of these, only Forest Hill, Weston, and a small section of York Township remain on 25-cycle power. The switch in York Township will have been completed by the middle of next month, and Forest Hill and Weston, in that order, will be standardized at 60 cycles between March 8 and the end of May this year.

The Yonge Street switch and the Toronto general conversion program starting next year will not bring 60-cycle power to the city for the first time, Mr. Saunders pointed out. For the past three years, 60-cycle power has been made available to new city industries and commercial establishments, as well as to those concerns making substantial additions to plant facilities. In addition, seven very large Toronto plants, and 135 smaller industries—with a total load of approximately 100,000 horsepower—are now undertaking conversion of their own equipment, through local contractors, a factor which will very substantially reduce the amount of power load involved in general Ontario Hydro city standardization and also facilitate early changeover of T.H.E.S. distribution facilities.

#### Domestic Customers

Toronto Hydro is also supplying 60-cycle power—to a limited degree at the moment—to those domestic customers who move into the city bringing 60-cycle equipment with them, making this possible by means of a duplicate 60-cycle system.

According to H. J. MacTavish, General Manager of the Toronto Hydro, the local utility now has this duplicate system about 50 percent completed, and will have it finished by the end of this year, covering the entire city.

Mr. MacTavish said it is estimated that the duplication of 25-cycle with 60-cycle lines in the city would save some 45,000 domestic customers the expense of having to have their equipment altered back from 60 to 25-cycle operation. This is the total number of domestic customers with 60-cycle equipment it is anticipated will move into 25-cycle sections of the city during the 5-year period of changeover, and who under this arrangement will be able to get 60-cycle power in advance of general conversion. If they had to have their appliances altered back to 25 cycles,

## NAMED MANAGER AT BOWMANVILLE

**H**YDRO and the name VanBridger, are now almost synonymous. Friends of George T. VanBridger were gratified to learn recently that he had been appointed Manager of Bowmanville Public Utilities Commission.

Associated with Hydro in various capacities since 1913, he succeeds George E. Chase who was Bowmanville P.U.C. Manager for 37 years. Mr. Chase was granted leave of absence during 1953 until January, 1954 when his retirement on pension became effective, at which time Mr. VanBridger assumed the full status of Manager.

Born and educated at Winchester, Ontario, Mr. VanBridger has been associated with Ontario Hydro and in the municipal utility field since 1929 when he started his career as a lineman. He later served as a meter shop superintendent and foreman with the Commission's Winchester and Lancaster Rural Operating Areas. Between 1941 and 1946, he was Manager and Secretary-Treasurer of the Iroquois Hydro-Electric and Waterworks System. Prior to his recent appointment, Mr. VanBridger was for seven years Assistant Manager of the Bowmanville Commission.

His father, the late T. O. VanBridger,



G. T. VanBridger

operated a steam electric plant and grist mill at Winchester from 1908 to 1913, at which time Winchester became part of the Hydro family and Mr. VanBridger became Manager of the Winchester R.P.D., latterly Winchester R.O.A., a position he held until his death three years ago.

it would be at their own expense, since Ontario Hydro is not authorized under existing legislation to make the change from the higher to the lower frequency.

#### Heavy Demand

Further substantial savings are being realized on Ontario Hydro's three-year-old program to provide 60-cycle power in advance to new industry and commerce in Toronto.

Toronto Hydro by the end of December, 1953, had 629 industrial and 1,530 commercial customers on its 60-cycle system. Service at 60 cycles to these and to 1,063 domestic customers in the city, had raised the local system's 60-cycle peak load at the time to 109,800 kilowatts, almost a quarter of the total system load.

#### Benefits

The advance scheme is resulting in two-fold benefits. In the first place, since

customers taking advantage of it are able to install new 60-cycle equipment, Ontario Hydro is saved the cost of changeover that would otherwise be required. Economies on this basis, particularly where industrial equipment is concerned, are very substantial.

Secondly, the customers themselves are in most cases making large savings on the purchase price of new 60-cycle equipment, as well as profiting from the fact that this equipment is made for a mass market in greater variety, and for a wider range of applications.

Mr. Saunders said it is now anticipated that the entire standardization project—biggest of its kind ever undertaken anywhere in the world—will be completed in 1960. "At that time," he said, "the people of Southern Ontario will benefit to the full from the many advantages that will result from standardizing the frequency of power with that of most of North America."



SATURDAY, JANUARY 16, 1954.

## FINANCE AT LARGE

By WELLINGTON JEFFERS, Financial Editor

Case Studies of Management in Canada  
To Be Used by World Congress in Brazil Soon—  
General Electric, Ontario Hydro Selected

Canadian managements definitely feel complimented because the 10th International Management Congress meeting at Sao Paulo, Brazil, Feb. 19 to Feb. 24, will have before it for chief study two case studies drawn from large Canadian organizations whose success in modern management is considered outstanding. These are Canadian General Electric Co., Ltd. and Ontario Hydro-Electric Power Commission. Last meeting of this Congress was three years ago and the Swedish Management Council was given the task of studying the situation in twenty different free nations and choosing those task studies which would best repay consideration.

### ONTARIO HYDRO OUTSTANDING MANAGEMENT SUCCESS

ONTARIO HYDRO has been selected as one of eight world business organizations which have made the most notable progress in dealing with problems of management structure.

In his column, "Finance At Large," on January 16, 1954, Wellington Jeffers, noted Toronto Globe and Mail Financial Editor, made the following comment:

"Canadian managements definitely feel complimented because the 10th International Management Congress meeting at Sao Paulo, Brazil, February 19 to February 24, will have before it for chief study two case studies drawn from large Canadian organizations whose success in modern management is considered outstanding. These are Canadian General Electric Company Ltd. and The Hydro-Electric Power Commission of Ontario. Last meeting of this Congress was three years ago and the Swedish Management

Council was given the task of studying the situation in twenty different free nations and choosing those task studies which would best repay consideration."

In his regular daily column "It's Your Business," Fraser Robertson, Financial Editor of The (Toronto) Telegram, on January 14, 1954, reported that the Swedish research team, preparing the studies to be presented at the world management conference in Brazil, had placed Canadian General Electric first in the list of "eight companies chosen from business the world over as examples of what can be done and how to do it," in respect to "making the best use of human as well as of material resources."

Then, Mr. Robertson adds "Here is reason for great pride on the part of Canadians. And that pride becomes even greater when we learn that number two on the list is none other than the Ontario Hydro."

#### Advisory Council Chairman Bereaved

ONTARIO HYDRO NEWS has learned with regret of the passing of Mrs. Leta Louise Maher, wife of James P. Maher, Chairman of the Ontario Hydro-Electric Advisory Council. Mrs. Maher, who was born in Rochelle, Illinois, has lived in Toronto for some 35 years. She is survived by her husband, a prominent Toronto industrialist and Chairman of the Toronto Metropolitan Planning Board; a son, and one sister.

#### Hydro Chairman Named President of C.N.E.

HYDRO Chairman Robert H. Saunders was recently elected President of Toronto's Canadian National Exhibition, succeeding J. A. Northey. His election as President climaxes an active participation in the affairs of the C.N.E. both as a Director and a member of the executive committee, being chiefly noted for his Chairmanship of the Sports Committee. Mr. Saunders has served as Vice-President for the past two years.

### RETIRES WITH PERFECT RECORD

SCARBOROUGH Public Utilities Commission recently paid tribute to one of the "Old Brigade," in the person of William (Bill) Charron. This stalwart of the old Hydro days started his retirement on January 1, 1954, with the best wishes of the staff and a host of Scarborough residents.

Mr. Charron retired with a very enviable record: 27 years of unbroken service and perfect punctuality in the period. He always walked to work and weather conditions never marred his record. If necessary, he would don snow shoes to take his regular route over the Scarborough Golf course to the offices of the Commission.

A presentation of a special pension cheque for one year was made by Ronald Harrison, Manager and Secretary-Treasurer, on behalf of Scarborough Public Utilities Commission. An electric saw from the members of the office staff and construction crew was presented by Edson Kerr, General Foreman, who recalled the early days in Scarborough. Victor Clague, Foreman, recalled Mr. Charron's dependable service and important contribution to the local system. Joseph Douglas, another veteran employee, acted as Chairman during the presentation ceremony.

#### Brantford Plans Building Alterations

BRANTFORD Public Utilities Commission has accepted a tender to the amount of \$29,800 for the conversion of a building on Murray Street for use as a warehouse and storehouse by the Hydro department. Work on this building will begin in the near future. The present single-storey building is of brick and steel construction. It will be converted into two storeys, and will contain personnel offices and a workshop. A new heating unit will be added. The property is over 500 feet deep by 140 feet wide with a railroad siding as a proper boundary the full depth, thus providing ideal pole storage. It is situated within the city limits and should serve the utility with ample storage capacity for many years in the future.





## UTILITY FORUM

SOME 150 guests, including Ontario and municipal Hydro representatives, as well as officials of several other power organizations, attended the recent Ontario Electric Utility Forum sponsored by Canadian Westinghouse Company Limited at Hamilton. Demonstrations of equipment as well as papers by Westinghouse engineers on network systems featured the one-day "Forum" while Canadian Westinghouse President H. H. Logge was guest speaker at the noon luncheon.

Guests attended the regular monthly dinner meeting of the Niagara District Electric Club during which A. W. Bradt, retiring General Manager of Hamilton Hydro-Electric Commission, received a presentation in recognition of his long

service and his notable contribution to the field of electrical distribution in Ontario. In the photo on the left several utility representatives are noted displaying keen interest in one of the special kits designed by Canadian Westinghouse for the training of utility personnel.

The group in the photo on the right includes, l. to r., Royden Golding, Toronto; C. S. Phelps, Manager, Sarnia Hydro-Electric Commission; A. R. Turton, also of Sarnia; O. S. Russell, Manager, West Central Region, Ontario Hydro, Hamilton; J. E. Teckoe, Jr., Assistant General Manager, Windsor Utilities Commission.

## HYDRO'S OUIJA BOARD

(Continued from page 15)

appearance of some ultra-scientific creation, suggesting the presence of innumerable mysteries. Ranged tier upon tier on the panels are the symbolized switches, dials, keys, metering instruments and crisscross network of flexible cords which are plugged into a maze of sockets.

Regardless of size or complexity all alternating current electrical systems are including Hydro's) comprised of various combinations of four main types of equipment. These are the electric power generators, transformers, transmission circuits and the loads the circuits must carry. The Analyzer provides the means by which each of these various components of the system may be represented in miniature.

### Electrical Characteristics

It is important to note that this equipment is not represented on the Network

Analyzer in any physical sense. To the contrary, the device duplicates only the electrical characteristics of, for example, a generating station. The first stage (1,428,000 horsepower or 1,065,000 kilowatts) of Hydro's giant Sir Adam Beck No. 2 development would be represented on the Analyzer as 1,065 watts. That is an exact scaling down of one electrical characteristic—the generation capacity—of this plant. Similarly 230,000 volts could be scaled down by the Analyzer to 230 volts.

To demonstrate the operation of a specific phase of a power system, these various components are interconnected by means of flexible cords on the plug-in board in such a way as to represent the system under analysis. When the dials and metering instrument are properly adjusted, each component of the system under study can be made to generate, transform and deliver to respective load areas, thus representing—in simulated

form—the actual operation of the electrical system which may, in reality, extend over many hundreds of square miles.

The metering board permits the amount of power flowing in each component of the system to be measured, while a set of keys, to the right of this board, which resemble the top of an adding machine, enables the operator to link the metering equipment with any circuit in which electrical quantities (such as voltage and power) are to be measured. The instrument may be further used to determine power distribution and voltage levels and system stability problems.

Thus, the Network Analyzer is able to turn its attention on any section of the Commission's power system and, like an x-ray machine, not only bring to light the electrical performance of that system but, as required, make the solution to a problem apparent to the investigating Hydro engineers.



## Home Forum

by EDITHEMMA DIGHTON

Hydro Home Economist



Winter air puts a keen edge on family appetites. While good food is certainly a cheerful sight, it is up to each one at the table to make the meal a happy interlude.

\* \* \*

A hearty breakfast is a wise beginning for the day. Fruit or fruit juice (with emphasis on cold tomato juice or citrous juice), a well-flavoured cereal with a generous amount of milk, and a further dish (poached egg, French Toast, or bacon and egg) appropriate to the activities and the occupation of the "eater," and a beverage of milk or coffee, is an adequate breakfast for the average person.

\* \* \*

Canned soups provide an easy short-cut in the preparation of many dishes. Here is an excellent casserole: Pour a can of condensed mushroom soup over a can of drained tuna fish. Mix two cups of cooked noodles into the casserole, then sprinkle buttered crumbs on top. Heat 20 minutes in a moderate electric oven.

\* \* \*

Canned soup is always popular as a main course for luncheon, or as a first course for dinner. For new flavor effects, combine a can of vegetable soup with a can of pea soup. Use part milk, if the soup is of the condensed type.

\* \* \*

Add some diced left-over cooked ham (or chopped crisp bacon) to onion soup. If there are left-over shrimps or sardines, add these to vegetable soup along with crushed crackers.

\* \* \*

Left-over mashed potatoes or chopped hard-cooked eggs stirred into prepared soup will make a more complete main course dish.

Kabobs are wonderful delicacies. Our favorite is seasoned cooked chicken livers, bacon curls, sliced cooked potato and pickled onions.

\* \* \*

You may prepare refreshing kabobs to serve as a dessert and keep in refrigerator until serving time. On each skewer place a maraschino cherry, a stewed fig, a section of orange, a grape, a cooked prune, and a green grape.

### COCONUT APPLE PIE

Pastry for one-crust pie  
2 tbsps. flour  
½ cup sugar  
⅛ tsp. salt  
1 tsp. cinnamon  
5 cups sliced apple (¼")  
1 tbsp. butter  
1 tbsp. lemon juice

Line a 9-inch pan with pastry, allowing pastry to extend 1 inch beyond edge. Fold edge back and flute with fingers. Combine flour, sugar, salt and cinnamon. Place a layer of apple in pie shell and sprinkle with part of flour-sugar mixture. Add remaining apples in layers, alternately with flour-sugar mixture. Sprinkle lemon juice over top and dot with butter. Bake in electric oven of 425 degrees (F.) for 45 mins.

Topping: Combine ¼ cup sugar and ½ cup flour. Add ¼ cup melted butter and mix well. Add ¾ cup Baker's coconut. Sprinkle mixture over top of baked pie. Return to oven and bake 7 minutes longer.

Popular main course dishes at this time of year are liver and bacon, braised shoulder of lamb, swiss steak, pepper squash stuffed with sausage meat, cabbage roll-ups, ham turnovers, beefsteak and kidney pie, green peppers filled with salmon and beaten egg, as well as hot vegetable plates with a cheese sauce for one of the vegetables.

\* \* \*

Snacks for the crowd may be served with ease if you dot split weiner rolls with cheese and spread with condensed mushroom soup. Heat on the broiling pan for 3 minutes and serve.

\* \* \*

Hidden surprise is found in a new roll of cream cheese with just enough garlic to make the cheese more interesting.

\* \* \*

Tired of Mashed Turnip?—Sprinkle a little nutmeg on the next casserole as it goes to the table.

\* \* \*

### Now for a few practical hints:

Before emptying the vacuum cleaner, sprinkle water on the newspaper or bag to keep down dust.

\* \* \*

Throw in the sponge these days! Keep a supply of plastic sponges in the home. They can be boiled if necessary. Use them for dishes, for cleaning electric appliances, washing woodwork, applying wax, for the bath, and one as the sink cloth.

\* \* \*

You probably know that rubber caps of the feet of chrome kitchen chairs can be purchased in the hardware departments. They are ideal to cap broom and mop handles.—No more marks on wall from sliding mops!



# Maybe You'll Laugh Too!



A busy executive asked his secretary where his pencil was.  
"Behind your ear," she replied.  
"Come, come," snapped the big shot. "I'm a busy man. Which ear?"

A newlywed filling out his income tax return listed a deduction for his wife. In the section marked, "Exemption claimed for children," he pencilled the notation, "Watch this space."

Indignant woman to luscious-looking brarian: "Funny you haven't that book. My husband said you had everything."

She: "You remind me of the ocean."  
He: "Wild, romantic and restless?"  
She: "No. You make me sick."

She: "I guess I'm just a babe in the woods."  
He: "Honey, meet an old forest ranger."

"Is your wife a club woman?"  
"No, mine's strictly a sh thrower."

The landlady brought a plateful of extreme-thin slices of bread which dismayed her angry men boarders. "Did you cut these Mrs. Brown?" asked one.  
"Yes, I cut them," as the stern reply.  
"All right," said the order, "I'll deal."

Plumber arriving three hours after the call: "Low's things, Mr. Brown?"  
The happy Mr. Brown: "Not so bad. While we're waiting I taught the kid how to swim."

A sugar daddy is a man of crystallized sap.

Lady golfer: "You'll drive me out of my mind."

Caddy: "That wouldn't be a drive, lady, that's a putt."

Inspector: "So he got away. Did you guard all the exits?"

Policeman: "Yes, sir. We think he must have left by one of the entrances."

A long sleek-looking car drew up to the curb where a cute number stood waiting for a bus to take her to her job.  
"Hello, beautiful," said the young man.  
"I'm driving west."

"How wonderful," replied the girl, "bring me back an orange."

Hubby: "The bank has returned that check."

Wife: "Splendid! What can we buy with it this time."

Old lady (to tramp): "Why don't you

work? Hard work never killed anyone."

Tramp: "You're wrong, lady. I lost one of my wives that way."

"Have you any good after-shaving lotion?"

"Yes, here's a little number that drives the girls crazy. It smells like money."

Mother: "Where do bad little girls go?"

Daughter: "Everywhere."

First young actor: "I got a part in a new show today, playing a man who has been married twenty years."

Second same: "Good. First thing you know you'll have a speaking part."

Two women were getting ready to board an air liner. One of them turned to the pilot and said, "Now please don't travel faster than sound. We want to talk."

"I'm thinking of getting a divorce. My wife hasn't spoken to me for two weeks."

"Better think twice. Wives like that are hard to find."

Local lady: "Doctor, is there something wrong with me?"

Doctor: "Yes, but it's trifling."

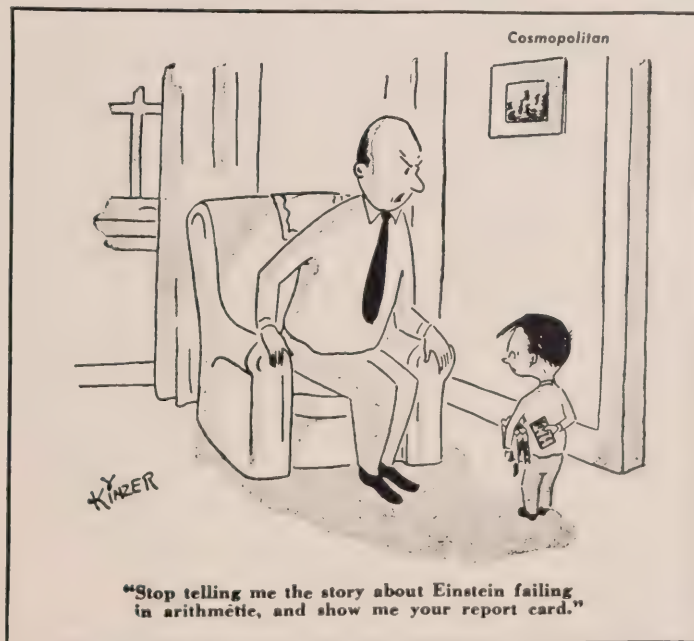
Local lady: "Oh, I don't think that's so very wrong, is it?"

Tourist: "Any big men born around here?"

Native: "Nepe, best we can do is babies. Different in the city, I suppose."

John: "So Jane broke your engagement. Didn't you tell her about your rich uncle?"

Jim: "Yeh. Now she's my aunt."







*Nylon Night*



ONTARIO HYDRO

# News

MARCH, 1954



THE STAGE IS SET  
Story on page 2



# ONTARIO HYDRO

# News

MARCH, 1954

Vol. 41

No. 3

Published by

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO  
620 UNIVERSITY AVENUE, TORONTO



## FROM THEIR HANDS

**O**BSERVING the operations of Ontario Hydro and the affiliated cost-contract municipalities of the province, and the long records of service of many of the people associated with this great and ever-growing public enterprise, one is immediately impressed with the fact that Hydro is becoming a truly venerable organization! We use the word venerable advisedly for it implies, not only length of years, but an object considered or regarded as worthy of deep respect or warm approbation.

Since Ontario Hydro came into being in 1906, this organization, in company with the municipally-owned Hydro distribution systems, has enjoyed continuous and unimpeded expansion.

But what has made Hydro grow? True, it can be attributed, in ample measure, to the engineering and technical skills which it has drawn to its ranks, and its basic principles—particularly that of power at cost.

There is, however, another very human aspect to this happy situation. Scanning the pages of each issue of this magazine, one is conscious of the unique service rendered to Hydro by many of the municipal commissioners and those who hold the reins of management. A quarter century of service among these devoted public officials is becoming almost a commonplace.

We believe that no one, or least very few, will deny that it is through their unswerving devotion to duty and to the principles of Hydro in the past four decades and more that it has achieved its present enviable reputation and position.

It is gratifying to note that the Ontario Municipal Electric Association has decided to recognize the valued services of these men. At the recent joint O.M.E.A.-A.M.E.U. annual convention in Toronto, 30 of them with a total of 873 years of service as municipal commissioners, were presented with plaques eulogizing their "contribution to the progress of the municipal Hydro systems . . . and loyalty to the ideals of our province-wide, publicly-owned hydro-electric system."

Their loyalty to this enterprise has had a profound effect on the economy of this province and to the standard of living of its people, being very aptly paraphrased by Wordsworth in these lines:

"Enough, if something from our hands have power  
To live, and act, and serve the future hour."



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Authorized as second class mail,  
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## CONTENTS

The Stage is Set	-----
Foto-News	-----
Big Job	-----
Of Cats and Clothes-Lines	-----
Status Quo	-----
Chairman's Report	-----
Future of the Atom	-----
Along Hydro Lines	-----
This and That	-----

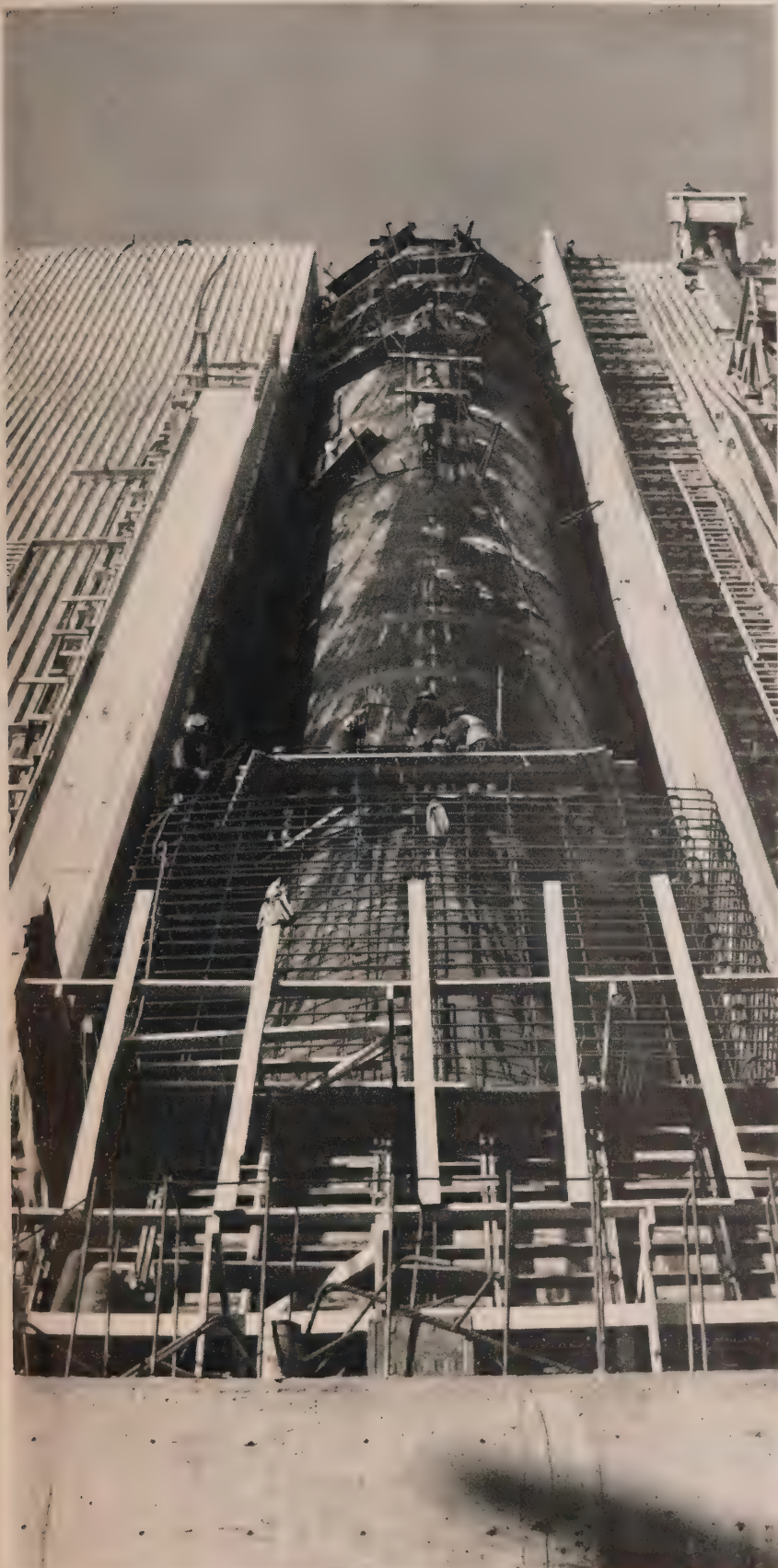
## COVER SHOTS

**O**N March 30 this year, Toronto will inaugurate its new 4.5-mile subway system, the first in Canada. As a salute to this engineering achievement, in which Hydro power will have a prominent role, our front cover depicts one of the subway trains emerging from Pleasant Portal near St. Clair Station.

Hundreds of tourists have been visiting Niagara Falls in recent weeks to view the huge ice bridge below the cataracts shown on our back cover.

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**T**HIS month we salute the engineers and workmen engaged in construction at Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2. With this mammoth development scheduled for initial service in five units this year, work is being pushed forward without an hour's delay. Here construction crews are working on one of the 12 initial penstocks, which are each 492 feet long and 19 feet in diameter. The penstocks are set in beds, chiselled from the towering cliffs of the lower Niagara River, and will be encased in concrete "envelopes." The rock between the penstocks will be faced with concrete to give a smooth, streamlined appearance and to prevent any falls of loose rock. (See "Big Job" — Page 8).



VISITORS inspect one of the modern T.T.C. subway cars which will serve Toronto passengers. In the lower photo, attractive Helen Merklinger points out one of the signs used to mark all subway entrances.



# THE STAGE IS SET

by  
Herbert B. Wood

**Complex and Unique**

**Electrical System**

**Will Control Operation**

**of Toronto's**

**4½-Mile Subway**

**W**HEN Canada's first subway swings into service on March 30 this year, citizens of Toronto are expected to enter the cars with all the aplomb of veterans.

Accustomed to reliable service, firmly based on a dependable supply of Hydro power, Toronto's streetcar patrons will acquire, overnight, the habit of turning into some 12 Yonge Street subway entrances. Officials of the Toronto Transit Commission are certain that the public's confidence will not be misplaced.

The 4.5-mile system costing approximately \$50,500,000 extends from Union Station north to Eglinton Avenue, two-thirds of it underground. It will whisk passengers along at 18 miles an hour, compared with the average surface peak rush-hour speed of less than 10 m.p.h.

Begun 4½ years ago, the subway will

further justify its official label as a rapid transit system by moving upwards of 40,000 people an hour in either direction. Present capacity of streetcars on Yonge Street is 13,000.

More important though, the subway will offer a striking demonstration of speed that can be evenly matched with safety. From the instant the first cars meet the unblinking electronic eyes, at both Union Station and Eglinton Avenue terminal points, will dispatch the trains at specified intervals of approximately 2½ minutes.

This automatic train dispatching equipment consists basically of an electric clock, an opaque film punched with holes, spaced according to the desired schedule time; a telechron motor to drive the film at a constant speed, and a photo-





ASSISTANT T.T.C. Supervisor, Fred Miles, checks one of the signal lights which will direct train operators. Trains will be stopped automatically if speed limit is exceeded.

electric relay unit which controls the switches to adjust the signals.

When perforations in the rolls pass the photo-electric eye, a train will get a "clear" signal to move. If a delay on the track throws the schedule off, the film will automatically compensate for the change. Time will be made up by cutting the waiting time at the various stations, particularly at the terminals—not by increased speed!

#### "Watch Dogs"

Meshed with the robot control box will be 90 signal "watch dogs," regularly spaced in "blocks" throughout the length of the subway. These vary in length according to the distance required to stop a fully-loaded train at the maximum speed. Of conventional three-light design, these signal boxes will enforce obedience to the signal lights. If a train passes a red light, a trip arm will cut off the power and apply the brakes of the train. In line with modern signalling practices, the signals in Toronto's subway will be arranged to permit a train to proceed past an automatic red signal at a reduced speed, after it has come to a full stop. As well, these control boxes will enforce safe speeds on curves and prevent collisions around train failures or special work.

YOUNG lady indicates control panel for signals and switches in the Davisville yard where cars will be kept when not operating.

However, it's pleasant to discover that when things get too tough, these magic electrical devices must call on human help. Switching from the robot control to manual control boards at Union Station, Davisville, and Eglinton stations will occur when abnormal situations arise—for instance when surplus cars must be returned or back-ups performed because of tie-ups due to mechanical failures.

The manual control boards consist of a map of the subway track system with rotary switches at certain points. To move a train from one point on the map to another, the operator turns the knob nearest the train until glass lines on the map glow white. This means that the right-of-way is clear.

When a green light beside the switch at each end of the portion of the map to be travelled glows, all switches are pre-

pared and the proper signals arranged in front of the actual train. When the train moves down the track, the lights will turn red behind the train.

At Davisville station, where there is a network of tracks connecting the storage yard with the main line, the track switches are driven by electric motors under the control of an operator in the signal tower. The method of correctly switching the cars follows the same method as the manual control operation of the trains. The signals in the yard are so connected—or in the language of railway signalling, "interlocked"—to obviate the danger of collision between trains.

#### Crossover Switches

Additional safety has been incorporated in the subway system by four emergency

*(Continued on page 4)*



T.T.C. assistant electrical engineer, Jack Harvey, demonstrates one of two automatic train-dispatching units. When perforations in rolls of film pass photo-electric eye, indicated by Harvey, trains, through subway's signal and switches system, will get a "clear" signal to move.







**EIGHT-man Ontario Hydro crew of cable splicers have worked for several months on subway's telephone system. Here Hydro's Cable Foreman Fred Oram makes a final check on one of the installations at Hillcrest Station.**



**HAROLD Sanderson, left, and Jim Malcolm, members of Hydro cable splicing crew at work in subway breaker room splicing telephone and supervisory system cables.**

crossover switches at King, College, Bloor, and St. Clair stations, and at each terminal. This will allow single line working in the event of a stoppage on either track or to turn a train short of either terminus.

Quite naturally, with such dependence on electricity throughout the subway, T.T.C. engineers have given top consideration to the method of ensuring a dependable supply of electric power, especially since the peak load will be approximately 11,000 kilowatts of 60-cycle power, 9,800 kw. alone for traction power!

Traction power for the subway is supplied by the Toronto Hydro-Electric System at 13,200 volts to four T.T.C.-operated sub-stations, located at Richmond, Asquith and Davisville Avenues, and at Pleasant Blvd. A fifth substation, operated by Toronto Hydro, located in North Toronto, also supplies additional power for traction. Service interruptions on the subway will be kept to a minimum by a two-line supply to each substation from Toronto Hydro's distribution system.

Power to operate the various services in the subway, such as lights, pumps, etc., is supplied directly from Toronto Hydro feeders at 208 volts.

Electrical energy is distributed in the subway through some 120 miles of circuit wiring encased in 33 miles of copper

conduit. Electrical fittings throughout the subway are of copper since condensation is an ever-present problem.

Behind the colored glass walls, and in rooms scattered throughout the 4½-mile system, giant AC and DC switchboards will control the electrical energy for the operation of lights, fans and pumps, and for the traction power. There are 12 AC switchboards each with duplicate power feeds, so that in case of mechanical failure, only half of the 60-cycle service will be interrupted. These switchboards provide power for the 8,000 T.T.C.-designed, dust-tight single lamp fluorescent fixtures and the 400-odd incandescent type that are used for emergency. The switchboards also supply power for heating, sewage ejectors, 25-horsepower drainage pumps, and for 10-hp. reversible fans that are capable of intake or discharge of some 50,000 cubic feet of air per minute. Thirteen such fans are strategically located between stations. Circulation of air through the subway is achieved by the piston-like action of the trains. Louvres at either end of each subway platform relieve air pressure and bring in fresh air from ducts leading to the sidewalk.

#### **Battery Emergency Supply**

Lights are so arranged that in the case of failure of AC power, an automatic transfer switch cuts in a 125-volt battery supply to operate incandescent lamps.

These are located at all entrances, control areas, and throughout the subway.

Traction power is supplied from six direct current breaker rooms throughout the structure and fed from five automatic mercury-arc rectifier substations that produce an average of 550-volt direct current. This DC power feeding the third rail can be isolated into 12 sections in case of trouble or for maintenance work.

Well over 14 miles of cable are used for the traction power. The cables are racked on the structure wall, in European fashion, for easy maintenance and through two miles of underground ductwork in the open-cut section, and spider web network under the trackwork at Davisville yard.

Telephones at each of the 90 control boxes and at other strategic locations a total of 136—provide a means of communication whenever needed. They are used in conjunction with the supervisory control and emergency alarm circuit. The emergency alarm is usually placed alongside a telephone and provides a means of interrupting the third rail current in a particular section. Emergency alarm boxes are placed at either end of station platforms and mid-way between tube stations. These are capable of isolating the tracks for 200 feet either side of the station, and killing "live" track within sight, and back to the nearest station. The power can be



be returned to the track by the power supervisor. Thus, in case of emergencies, should passengers be required to leave trains and walk back to the nearest station, they will not be exposed to the risk of coming in contact with "live" electrical equipment.

The 68 miles of wiring in the supervisory system makes it possible for the control station, located in a T.T.C. building at its Hillcrest Avenue yards in central Toronto, to control various pieces of equipment in the subway such as reversible fans, off-peak load, direct current heating and open-cut lighting. This control station also receives indications of high water levels and overload conditions in the pumping stations, signals indicating low emergency battery voltage, and

whether the power supply to the 12 passenger stations is on normal or on the parallel standby service.

#### Hydro Cable Splicers

An important contribution in planning the subway's telephone cable system was made by members of Ontario Hydro's Communication Department, which supplied consultants to the T.T.C. engineers. Further assistance was given when Hydro dispatched an eight-man crew of skilled

*(Continued on page 6)*

Open-cut section of subway showing protective fencing and standard street lighting luminaires mounted at 25 feet on concrete poles between north and south running rails. Two units are installed on each pole which are spaced approximately 140 feet apart.



QUEEN STATION looking west through the paid area, showing single-lamp, flush-mounted recessed lighting units in the control areas. Escalator leads to passage connecting with large department stores.

VIEW of tunnel near Union Station terminal, showing dividing wall. Lighting units are mounted on ceiling above catwalk about 20 feet apart. Emergency lighting comes from incandescent fixtures.







VIEW of gleaming and comfortable interior of one of Toronto's new rapid transit cars. Each car is equipped with 47 recessed incandescent circular ceiling fixtures at 28-inch intervals. Fixtures are fitted with 48-watt, 30-volt bulbs, 12-inch frosted shades, and aluminum reflectors.



MOTORMAN G. W. Davis at the controls of a subway car. He is operating speed control with his left hand and brake control in his right hand. Trains, with maximum length of eight cars, can be operated from either end.

cable splicers to work on this complex control network. An eight-man staff, involving four splicing crews has been working in the subway since last June. To date, 1,500 circuit miles have been installed to complete the subway portion of the job. In addition, 3,000 circuit miles have been installed throughout the eastern half of the city which will modernize control of the T.T.C.'s surface transportation necessary for its functioning in conjunction with subway schedules. At present, work is proceeding on installations in the western half of the city. This work is supervised by members of Ontario Hydro's Engineering and Construction Divisions.

Complexity of the task in the subway alone, is underlined by the fact that there are 103 splices, each one requiring the connection of some 101 pairs of wire, or circuits.

The 104 subway cars were manufactured in England by an old experienced company which has built many of the subway cars for the London "tubes."

They have been designed to provide comfortable and fast service and are longer and wider than the standard streetcars. There are three double doors on each side of the car which open level with the station platform to facilitate rapid loading and unloading. All of the

62 seats in each car are located within five steps of the nearest doorway.

Attractive ceiling fixtures afford ample light for reading and several lights are battery-operated to provide emergency lighting in the event of power failure. Automatically-controlled heating and ventilation is provided. The car body is specially insulated to reduce noise and vibration.

The cars will operate in pairs, and can run as close together as two minutes. There is a driver's cab at each end of every pair of cars. The smallest train consists of two cars, and the train length is increased by the addition of two-car units up to a maximum of eight cars, which is the limit of the 500-foot station platform.

Operation of a train, regardless of length, is from the front driver's cab and power is fed or brakes applied to all cars simultaneously. Loops or other turning facilities are not required at terminal stations because the trains can be operated from either end.

#### Power From Third Rail

Each car is propelled by four 68-horsepower high-speed electric motors which draw power collected from the third rail.

(Continued on page 26)

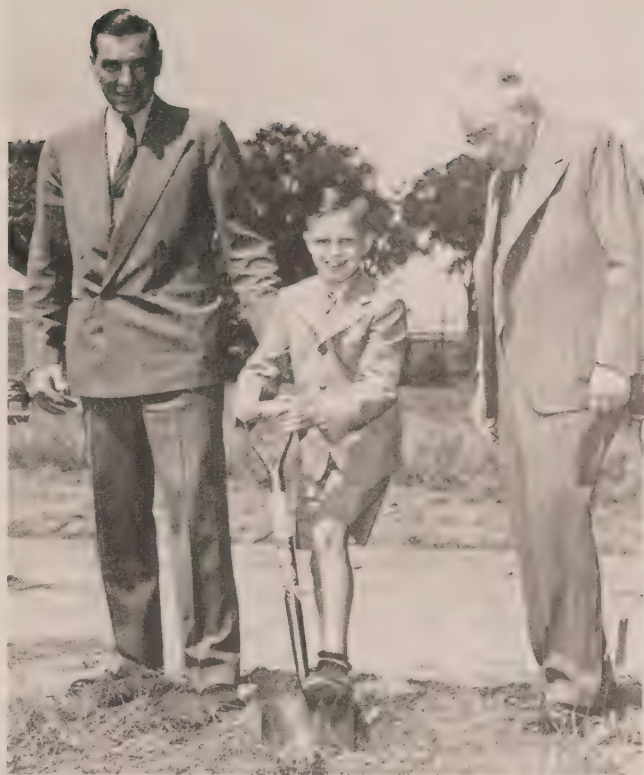


# FOTO-NEWS

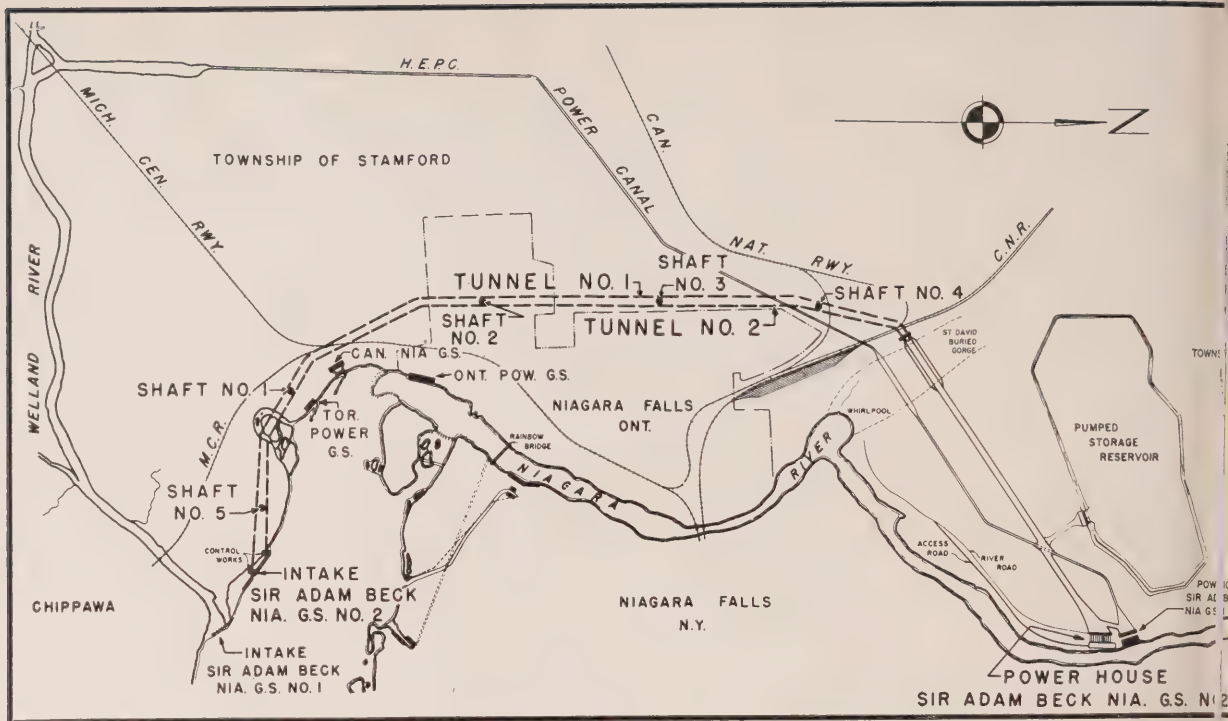


**THREE GENERATIONS**—This brief article might well be described as “before and after” at Ontario Hydro’s Sir Adam Beck-Niagara Generating Station No. 2! For indeed these photos of three generations of two well-known Ontario families represent the initial and climactic stages of construction at this vast project. In the photo on the right are three members of the Rayner family, showing young Robert Rayner, junior member of the construction triumvirate, centre, turning the first sod for Shaft No. 1, Tunnel No. 1, in June, 1951. Watching proudly are his father John W. Rayner, left, and his grandfather, George W. Rayner, right, President of Rayner Construction Limited. This firm, in temporary partnership with the Atlas Construction Company, has had the contract for excavation and construction of Sections 1 and 2 of each of the huge twin tunnels.

Not long ago, another three-generation group, the Leslie family, Niagara Falls (Ontario), publishers, visited the project and saw Tunnel No. 1 completed with Tunnel No. 2 “well on the way!” In the photo below, Frank H. Leslie, Hydro Chairman Saunders, Frank Leslie, publisher of the Niagara Falls *Evening Review*, and his son, Bruce Leslie, view the assembly of the large generating units in the powerhouse.







▲ MAP of Niagara area showing various facilities for Sir Adam Beck No. 1 & No. 2 station

▼ THIS striking aerial view shows the powerhouse area of both Niagara generating stations with new open-cut canal, left, and the unique crossover section indicated. Pumped storage site is at right, centre.





# BIG JOB

Official Opening of Ontario Hydro's Sir Adam Beck-Niagara  
Generating Station No. 2 to be Held in August This Year  
—First 100,000-Horsepower Unit Scheduled for Service in April

by HORACE BROWN

**H**OW big is BIG? When all 16 units are installed at Ontario Hydro's 1,828,000-horsepower Sir Adam Beck-Niagara Generating Station No. 2, near Queenston, this mammoth development will have a powerhouse approximately 1,150 feet long. The imposing structure will be 63 feet wide, 50 feet high from the operating floor, with some 85 feet of substructure below the floor.

If this impressive building were set on Bay Street in Toronto, it would reach for three blocks—from King Street to Queen Street—with four storeys above the ground, and seven storeys below the street level.

Yet the sole purpose of this great structure, nestling at the foot of the 300-foot Niagara gorge six miles below the cataracts, is to supply power to the people of Ontario.

And the powerhouse is not the largest part of the Niagara project, by any means.

Yes, the Big Job is BIG!

The development stretches from the intake structures, two miles above the Falls at Chippawa—eight miles across country almost to Queenston—and includes intakes, twin  $5\frac{1}{2}$ -mile tunnels diving as deep as 330 feet under the City of Niagara Falls, a  $2\frac{1}{4}$ -mile open-cut canal, a pumped-storage scheme, a large forebay, and the powerhouse.

At its peak, it employed a work force of 6,800 men and hundreds of machines. It created "Hydro Cities," involved the

building of 25 miles of service roads, moved millions of tons of earth and rock, and pushed back the shoreline of the Niagara River temporarily.

A useful and spectacular monument to Canadian engineering skill and initiative, the Big Job nears completion. A little over three years ago, in December, 1950, the first power shovel took its first mammoth mouthful. Today, the project approaches a record of construction achievement second to none. Tomorrow, power will flow into the transmission and distribution lines of the province.

For the Big Job is scheduled to start work this year, when the first five, 100,000-horsepower units of its 12-unit phase will be placed in service. (Chairman Robert H. Saunders announced recently that the Commission expected to bring the plant's first 100,000-horsepower unit into service in April and to hold the official opening ceremony in August this year.) Early in 1957, the 12-unit phase of the project, together with the power developed by the turbine-generators at the pumped storage reservoir, will add a triumphant 1,428,000 horsepower of installed capacity to Ontario's power pool. With provision for four more 100,000-horsepower units to be added as required, the eventual capacity of the new station is 1,828,000 horsepower.

Let's look at the Big Job . . . the way it is today, and how it got that way.

## The Intakes

The intakes consist of two gathering



**TWO gathering tubes, shown under construction "in the dry," together will convey 15,000,000 gallons of water per minute to the tunnels. First tunnel will be in operation in June this year, well ahead of schedule.**

tubes, each 500 feet long. Each will supply water to one of the twin tunnels, at the normal rate of 7,500,000 gallons a minute. No. 1 tube is now completed; concrete is being placed in No. 2.

That is the bald "progress report." It tells nothing of the difficulties encountered and overcome during construction.

The intakes had to be built in a location where sufficient water would be available without turbulence, and in such a way that floating ice would not interfere with the flow of water. The "loca-

*(Continued on page 10)*





**SIX TONS** of dynamite were used to blow out solid rock plug separating forebays of Sir Adam Beck—Niagara Generating Stations No. 1 and 2 recently. Water in No. 1 forebay (foreground) surges upward as the blast is set off. Open-cut canal for the new plant is visible, upper left.

tion" is two miles above the Falls. Anyone who has seen this area, and recalls the sweeping rush of the Niagara River at this point, will realize what problems faced the engineers and construction men.

The first step was to build an 1,100-foot timber-crib cofferdam and an earthen dike, 400 feet long, enclosing 14 acres of the Niagara waters. Before excavation for the structures could proceed it was necessary, also, to place a grout cut-off curtain around the whole area to be unwatered. This was accomplished by diamond-drilling some 1,200 holes, approximately 25 feet in rock, and pumping in grout (a mixture of cement and water). Following this operation, in which some 109,000 bags of cement were used, it was possible to begin excavation

"in the dry," although large pumps had to be kept going constantly to throw back into the stubborn river the forces it still sent to the onslaught.

#### Like Giant Mouth-Organs

In placing the structures, it was necessary to excavate 782,000 cubic yards of earth, and 202,000 cubic yards of rock. This put the workers far below the level of the Niagara River. The gathering tubes, with apertures through which water will enter, resemble oversized mouthorgans. To bypass ice and to obtain the most efficient flows, the gathering tubes have been located below the water surface, parallel to the main currents of the river.

To ensure that an adequate supply of water would be available for the tubes

and to carry ice past the intakes, 250,000 cubic yards of material were dredged from the bed of the river in a hazardous but accident-free operation, making a funnel section 400 feet offshore.

Two gates will be installed midway between each gathering tube and inlet portal of the twin tunnels. These gates will be used to stop the flow of water should this be necessary for any reason in the future. Each gate, 58 feet high and weighing about 200 tons, will span the 45-foot opening.

The control structure for No. 1, which will hold the electrically-operated gates in place. Also installed is a section of emergency gate, in order to protect the tunnel, should the cofferdam give way. This is considered an improbable contingency, but precautions must be taken to eliminate, if possible, all risks and hazards in such a project. This emergency gate, operating on the same principle as the stop-logs on an ordinary hydraulic dam, has eight steel sections piled one on top of the other. These are fitted into steel slots or "checks" embedded in the concrete.

The 100-foot long transition section of the intakes seems a miracle in itself. Here, "square water" will, in effect, be turned into "round water." The gathering tubes are 45 feet square, from the river-face slot to the control structure, and the tunnels are circular in shape, with a finished diameter of 45 feet.

It is easier to construct a straight line in concrete than a curved line, so the gathering tubes have been built as tapered boxes. As the transition progresses, the corners of the square gradually and almost imperceptibly rounded off, until a perfect circle is achieved. It is calculated that the water will be flowing at ten feet per second in the "square," and twelve feet per second in the "round." This speed-up makes it possible to carry the same amount of water per second in the "round" as in the "square."

A 400-foot long circular pressure tunnel, leading from the transition section to the tunnel inlet portal demonstrates one of the most amazing feats of the Big Dealing in millions of tons of earth and rock, miles of intake, tunnel and canal, with all parts of the job separate and called "divisions," and under their superintendents, it would seem literally impossible to join up the various sections without going greatly "out of kilter" somewhere. Yet, when the pressure tunnel for No. 1 intake was completed, it was



impossible to tell where the tunnel crew left off and the intake workmen took over. So well has the project been designed on the Hydro drawing-boards, so well has it been carried out by Hydro workers, that this perfection is commonplace.

When the intakes are completed, they will be backfilled to the original level from stockpiles maintained on the job.

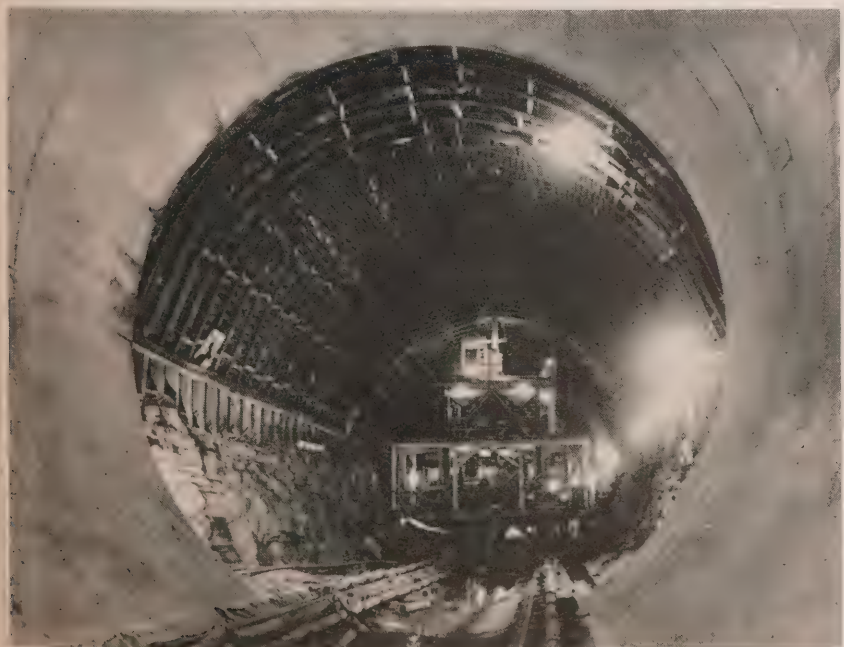
### Tunnel No. 1 Completed

Tunnel No. 1 lining was completed in

December, 1953, with the last of the 490,000 cubic yards of concrete placed with the 45-foot form. Excavation for No. 2 tunnel is finished, and concreting is well-advanced. It is anticipated that Tunnel No. 1 will carry water in June this year—well ahead of the original schedule! Over nine million tons of rock were removed from the big holes. Together, the tunnels will convey 15,000,000 gallons of water a minute to the canal, enough to supply the needs of the City of Niagara Falls for a week.



UPPER PHOTO—Placing the "invert" for a section of Tunnel No. 2. LOWER PHOTO—Section of Tunnel No. 1 is shown with concrete lining complete. Tunnels have a rough diameter of 51 feet, which is reduced to 45 feet by the concrete lining averaging three feet in thickness.



### Access Shafts

To reach the underground distance required for the tunnels, five access shafts have been sunk into the rock past the depths of the tunnels. These have provided entrances and exits for men, materials, and equipment, and for the removal of the excavated rock. The shafts were offset in such a manner that they could be used for the construction of the "twins," running parallel some 250 feet apart, from centre to centre. The shafts were sunk 6,225 feet apart. Each has an elevator, capable of raising or lowering a maximum of 20 tons, two rock skips, and hoppers. The tunnels are being concreted in two stages, first the invert, followed by the arch. Concrete is dropped into the tunnels through 10 inch downholes. These are drilled along the length of the tunnels from the surface at varying distances. Underground work shops have facilitated repairs right on the job. Ventilation in each shaft is supplied by huge fans, forcing air through two vent pipes, 4½ feet in diameter.

Thought has been given to the future. Should the tunnels need repairs at any time, the gates of the intakes can be closed, steel logs placed in "checks" at the outlet portals, and the water pumped from the tunnels.

These twin hydraulic pressure tunnels are, as far as it is known, the largest of their type in the world. Soon, they will be ready for the sole purpose of their making—conveying water to generate power for the people of this province. No man will see the filled tunnels: but they will be there in their silent service for more time than man can contemplate.

### Open-Cut Canal

The job of removing 3,646,000 cubic yards of earth and 4,626,000 cubic yards of rock for the canal and forebay is completed.

The huge development moved a step closer to initial operation on March 6 when 25 tons of explosives blasted out two huge rock plugs in the open-cut canal section. The first blast blew out the forebay plug—a 12,000-cubic yard wedge of solid rock separating the forebays (or head-ponds) of the new plant and the existing adjacent Sir Adam Beck Niagara Generating Station No. 1. Thus, for the first time, water entered the new forebay, marking a major turning point in construction.

The second blast tore out the massive 34,500-cubic yard rock barrier at the lower end of the crossover between the

(Continued on page 12)



existing and new open-cut power canals.

Extensive safety and security measures were taken to avert any damage to Hydro facilities or injury to personnel. Elaborate precautions were taken to protect the screenhouse of No. 1 plant, only 160 feet from the forebay plug. An "air bubble curtain" was introduced for this particular operation to cushion the impact of shock between the forebay plug and the screenhouse. Through this process, developed by Ontario Hydro research engineers and explosive experts of Canadian Industries Limited, compressed air was forced through holes drilled in a series of pipes submerged in the forebay of the No. 1 plant. The resulting "curtain" of bubbles acted as a buffer and reduced the impact of the plug-blast explosion, so that the shock against the building was only 1/70th of normal. Seismic recordings indicated a minor amount of tremor.

Six tons of explosives were required at the forebay plug and 19 tons at the crossover plug, the largest blast yet fired on the canal section of the development. Firing of the forebay blast required 100 electrical horsepower; for the crossover blast, 200 horsepower.

It was necessary to pour concrete in only one section of the big ditch. This is the trapezoidal (resembling a spread "V") section, built over ancient glacial debris. Many years ago, the Niagara River had its course across this section, leading to what is now the Whirlpool. The 2,200-foot long trapezoidal section required 77,000 cubic yards of concrete and 2,980 tons of reinforcing steel.

The open-cut canal is  $2\frac{1}{4}$  miles long, 200 feet wide, with a depth through earth and rock of 70 feet, and it will have a water depth of some 30 feet.

The pride of Canada Steamship Lines is the giant freighter, "T. R. McLagan,"

launched in 1953. The largest cargo carrier on the Great Lakes, it is 700 feet long, the maximum length allowed to lock through the Welland Canal. The great ship has a beam of 70 feet, and maximum draft of 25' 6".

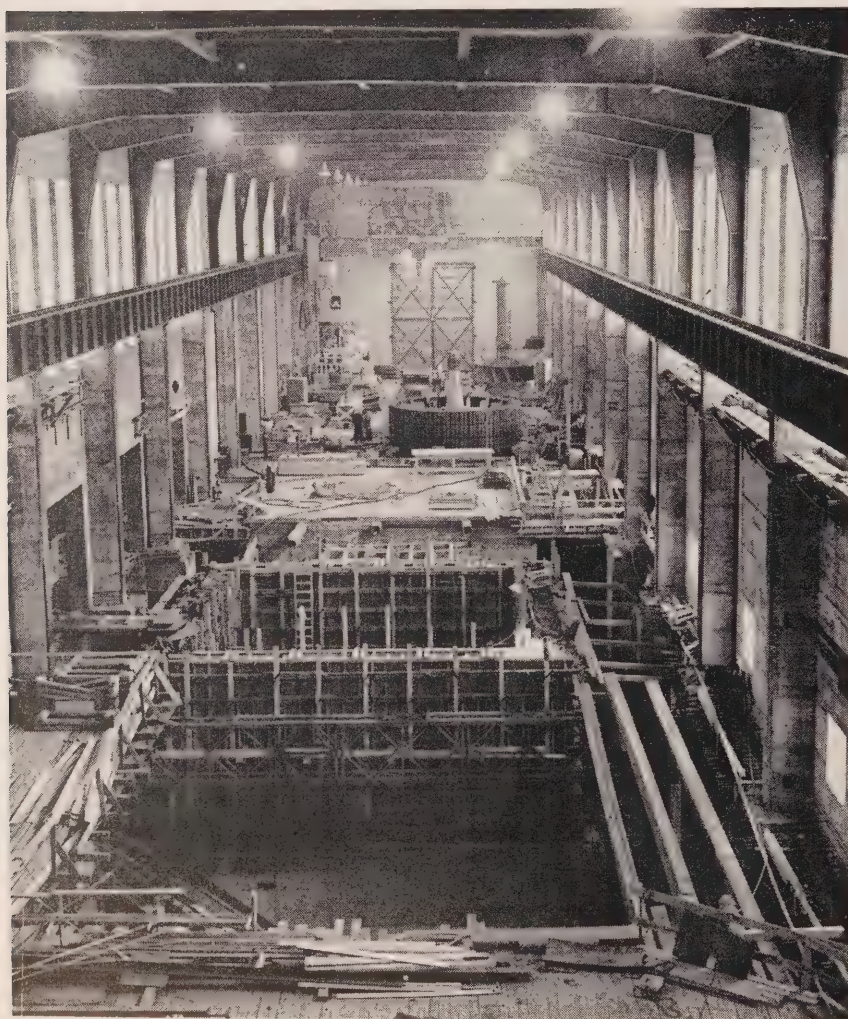
The canal could carry a total of 16 such craft, 16 travelling in each direction with 13 feet of open water between each ship and some 60 feet of passing room. Yet the canal of the Big Job is designed only to convey water to create power for the people of Ontario.

One of the unique features of the hub project will be the pumped-storage scheme authorized in July last year. This has necessitated several changes in the plans for the development, including creation of a storage reservoir covering some 700 acres and containing 650,000,000 cubic feet of water; widening of a portion of the open-cut canal; enlargement of the forebay, and extension of the headworks for operation of the four additional units to be installed as required.

A pumping plant, equipped with eight pump-turbine units, will be located at the upper end of a 1,400-foot "off-take" canal, now being excavated.

The pumped-storage scheme, scheduled for service in 1957, will increase the generating capacity of the project by pumping water into the reservoir at night, and, at peak periods, running the same water back through the units as needed. When these pumps are operated in reverse, they will act as turbine-generators and will generate some 228,000 horsepower. The reservoir will also enable fuller use to be made of all units of the station, particularly at times of high demand, when quantities of water allowed by the Niagara Diversion Treaty would place temporary restrictions on full capacity operation.

At the foot of a two-lane service road, carved from the face of the 300-foot cliffs of the Niagara gorge, is the powerhouse of the Big Job. Steel penstocks, 19 feet in diameter and 492 feet long, for the first five units have been installed, with work on the remaining penstocks of the 12-unit phase well-advanced. The powerhouse, looking like the rotunda of a great railroad station, and the control building which will eventually operate both the new station and its predecessor



INTERIOR of the new powerhouse showing installation of generating units, five of which will be in operation by the end of 1954.





OVERALL VIEW OF POWERHOUSE CONSTRUCTION. CONCRETE "ENVELOPES" FOR TWO PENSTOCKS ARE SHOWN COMPLETED, RIGHT.

just downstream, the Sir Adam Beck-Niagara G.S. No. 1, have most of the concrete placed. The scroll-cases for Units No. 1 and 2 are in place, ready for the installation of the first generating unit, and the scroll-cases for Units 3 and 4 are in and being readied for concreting.

To prepare the powerhouse site, more than a million cubic yards of rock were excavated for the first twelve units. This phase will require 235,000 cubic yards of concrete, and some 19,000 tons of steel.

Designed to blend into the natural grandeur of the Niagara gorge, the powerhouse is already assuming a shape of beauty that is a credit to Hydro's architects and engineers.

#### Best Possible Designs

Nothing was left to chance in preparation for the Big Job. To ensure the best possible designs being employed, and to make necessary modifications to the original plans, Ontario Hydro constructed five models, one a duplication of five miles of the Niagara River from the tip of Grand Island to the Rainbow Bridge below the Cataracts, set up at the A. W. Manby Service Centre, Islington, Ontario. Four other smaller models of the canal cross-over, the tunnel outlet and

canal transition, the canal and forebay, and the intakes were located at the University of Toronto. It is estimated this "design insurance" saved Ontario Hydro more than five million dollars.

Remedial works will be built out in the Niagara River above the Horseshoe Falls, under a joint agreement between Canada and the United States, creating a more uniform flow of the Niagara River over the Cataracts and contributing to the most effective use of water for power production. Thus, not only will the beauty of the Falls be enhanced, but the maximum use of water available for generation will be made. Ontario Hydro has jurisdiction over the building of the remedial works on the Canadian side of the river.

The remedial works will consist of a 1,550-foot long dam at Grass Island Pool, controlling the water level in the Chipawaga-Grass Island Pool area. Excavation of rock from the Canadian and Goat Island flanks of the Horseshoe Falls will produce an unbroken cataract crest-line, and give the desired distribution of flow over the Falls.

At the same time, earth and rock will be used to fill in the ends of the Horseshoe, eliminating the incidental flow over the extremities of the crest. This

will permit an unbroken curtain of water to flow over the precipice. The fills, landscaped to blend with the formation of the gorge, and the remedial works as a whole, will preserve the beauty of the Falls as an unparalleled tourist attraction.

#### Remedial Construction

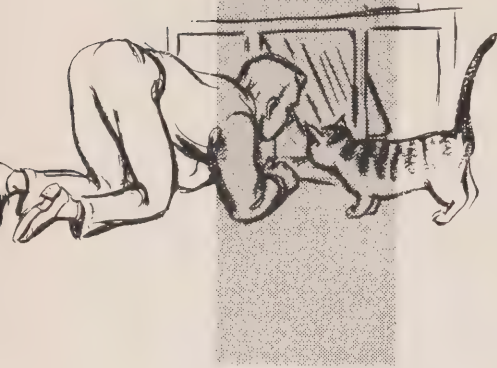
Building of the remedial control dam is being preceded by unwatering, through the erection of cofferdams upstream and downstream. The unwatering and construction will proceed in four stages. The cofferdam will be composed of steel frames, 30 feet by 10 feet. These will be placed on the bed of the river, supported by "H" piles, and counterweighted with six-ton concrete blocks. Steel sheet piling will be driven along water faces as a "water stop."

#### "Backstage" Operations

The Big Job could not have been carried on to its present state had it not been for considerable "backstage" preparation. Some 25 miles of access and service roads were built by Hydro to facilitate activities on the development. Disposal areas 640 acres in extent were set up to handle the millions of tons of earth and rock excavated, on land judged of small value for other purposes.

(Continued on page 26)





# OF CATS AND CLOTHES-LINES

Ontario Customers Make Many Novel Uses of Electricity, Hydro Technicians Have Discovered Since Changeover Started

By ALLAN A. JONES



*"The time has come," the Walrus said,  
To talk of many things:  
Of shoes—and ships—and sealing wax:  
Of cabbages—and kings—  
And why the sea is boiling hot  
And whether pigs have wings—"*

WHEN it comes to telling stories of the unusual, engineers and technicians working on Ontario Hydro's huge 25 to 60-cycle changeover program in Southern Ontario could almost rival Lewis Carroll's Walrus. The list of "odd" electrical items which have been altered for 60-cycle operation and the many unique and challenging changeover tasks encountered, is both long and interesting.

Hydro, naturally, had anticipated that it would meet with some unusual equipment, and some particularly difficult and engaging situations during the complicated process of converting appliances and equipment for some 904,700 domestic, commercial, and industrial customers.

OWNER A. W. Purtle (left) explains operation of unique "juke-box" changed over during standardization operations in the Lakeview area of Toronto Township to Ontario Hydro's F.S.D. Area Service Supervisor M. C. Wallis.

The expectation has been more than realized since the giant program was launched more than four years ago, and experience has provided, among other things, clear evidence of the increasing number of ways in which Hydro customers are making use of electricity. It has borne out, in the most graphic way, Hydro Chairman Robert H. Saunders' statement that "the people of Ontario enjoy a standard of electrical living surpassed anywhere in the world."

## "Odd" Items

In a section of North York, for instance, standardization crews had to alter a 60-cycle operation a unique electrical contraption providing "doorman" service for a household cat. Tired of having to rouse at all hours to let his pet in and out, this homeowner rigged a small net to a wooden "door" forming one of the panes in a basement window which the cat can open by stepping on a treadle.

Among other "oddities" was a 57-year-old "juke box," a big musical contraption playing steel records more than two feet in diameter and an electric bridge which automatically deals and stacks cards on a rotary selective system.

The bridge table presented an interesting





INFORMATION Department (F.S.) staff member, Mrs. Mary Reynolds, tries cup of tea brewed by automatic tea-maker and alarm clock altered by technicians for North York customer.

H. B. LURIE, Ontario Hydro reclamation officer, I., and Lawrence Tittensor puzzle over 1908 model washing machine, one of many veteran types encountered in changeover program.

and delicate changeover problem. While the 25-cycle driving motor itself was easily replaced by a 60-cycle unit, the job involved re-timing the whole "Rube Goldberg" system of gears and levers, and small steel fingers tripping the cards had to be bent to within a tolerance of almost 1/1000 of an inch.

Employing electric power to deal a bridge hand is unusual enough; actually, there seems to be almost no end to the number of uses of it, as two Windsor changeover tasks illustrated.

#### Deaf Aid

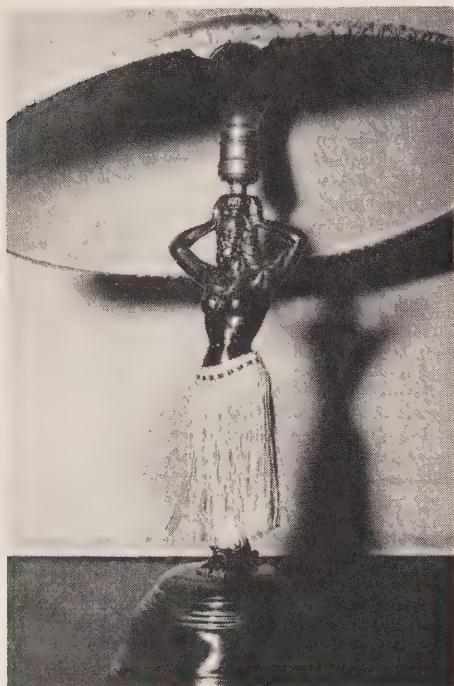
In that city, Hydro crews converted an ingenious device contrived so that a totally-deaf Windsor housewife could be warned when visitors were at her door. It consists of a fractional horsepower motor driving a "fan" made of leather straps, and activated by an ordinary door-bell button at the front entrance. On the end of each strap are steel bolts which, with the "fan" in motion, strike the floor boards of the house, setting up an easily-felt vibration. As a further aid, warning lights are installed to flash on in the hall, the kitchen, and the basement.

*(Continued on page 16)*





**CHANGEOVER** technicians blinked when they were shown this item. They had to alter a small motor in the base of the lamp which makes the dancer's grass skirt revolve slowly, giving the impression of a hula dance.



AT WINDSOR, Hydro technicians converted motor for a unique "floor-thumper" device used as an alternative to a doorbell of a deaf housewife. W. H. Dalton, Manager Ont. Hydro's Information Department, (F.S.), demonstrates with a model of "thumper."

Another Windsor homeowner with an inventive flair, had on his list of frequency-sensitive equipment an electrically-operated clothesline that lifts washing well above the ground, into the breeze and out of reach of dogs and children. Standardization technicians had to alter the motor for the ratchet used to raise or lower the cross-arm on the pole which regulates the height of the clothesline.

The list of unusual items is almost endless, and includes such things as half-century-old washing machines; an electrically-operated "cow" used for display purposes; an automatic tea-maker; a table lamp with a movable hula dancer; home-made items such as record players, fans, toy train transformers, floor polishers, and clocks (made out of cigar boxes, car hub-caps, and even a frying pan),

and dozens of other ingenious items.

In several instances the number of appliances per customer was the outstanding feature. For example, in a home near Toronto, crews altered no less than 89 separate frequency-sensitive items, including 32 connected with the heating system alone. It is not at all unusual for Hydro changeover technicians to find more than 10 appliances requiring alterations in a home, although the overall domestic average is approximately four.

#### Operation Well

The frequency switch is by no means confined to customers in urban centres. It will also affect thousands of farms in the rural areas, where electrification is going ahead by leaps and bounds.

Changeover of deep-well pumps in the rural sections provides a striking indication of ingenuity and resourcefulness in

solving specific standardization problems easily and efficiently.

There are two major headaches connected with changeover of these wells. One is the difficulty of access to the pump motors at the bottom of the wells, which are often more than 60 feet deep. There is the danger of deadly carbon monoxide gases.

The first problem has been eliminated by using the "jack-of-all-trades," the jeep. A small crane and winch mounted on the back of the jeep makes it possible to lower the changeover technician into the well on a wooden, rope-suspended seat resembling a navy bosun's chair. A gas mask and a full tank of oxygen strapped to the technician's back, plus a blow continually pumping air into the well, ensures complete safety against the poisonous gases. In addition, he wears a miner's hard-rock helmet to guard against the possibility of objects falling from above.



### The Human Touch

The complexities of the big standardization project are not always limited to the physical problems of converting actual equipment. The human factor occasionally enters the picture too.

There is, for example, the amusing story of the housewife who left a note requesting Hydro technicians to leave the new 60 cycles on the doorstep. Her husband, she explained, would install them himself.

In Goderich, a woman complained that following changeover a bad smell began emanating from her refrigerator. Its source, following an investigation, proved to be a long-dead fish brought in by the family cat. Possibly remembering the famous "Sighted Sub. Sank Same," the Hydro man who investigated reported: "Dead fish, placed under refrigerator by cat, removed. Odor gone."

In another instance, a customer called the Hydro frequency standardization office to complain that her sewing machine did not operate after it was altered. A service man discovered she had simply forgotten to plug it in to the wall fixture.

### Vital Services

One of the most exacting tasks is the standardization of equipment connected with vital public services such as hospitals, water-pumping stations, heating plants, the press, radio stations, and transportation facilities. For these, the

switch to 60 cycles must be, and is, carried out with the absolute maximum speed and efficiency, as well as the minimum of interruption to the service itself.

Care, precision, and speed is particularly important in the standardization of hospital equipment. At the Victoria Hospital in London, for example, crews had to change over an iron lung which had been home and life to its occupant for seven years. The conversion was completed without incident. At the same hospital, the switch was successfully carried out on a modern miracle of medical science; an electric surgeon's knife which heals as it cuts.

Dozens of newspaper plants have been converted to date with a minimum of interruption in delivery of the day's or the week's news to the public. Large dailies in such cities as London, Sarnia, and Windsor have been altered to date.

To achieve this kind of efficient record, Hydro engineers and changeover technicians have had to plan the switch to a split-second schedule. Often, particularly when dealing with radio stations and water-pumping plants, they have worked

in the "wee sma' hours" when much of the equipment was not in operation.

### A Staggering Job

Whether in the home, on the farm, or in the factory, the 60-cycle changeover is a big job of almost staggering proportions and complexity. In the entire 12,000 square-mile area to be affected, for instance, standardization must be carried out for some 17,000 power customers. One of these industries alone can contain upwards of 6,000 frequency-sensitive items. To add to the problem of sheer numbers, many of these items, like the transformers replaced atop the Ambassador Bridge at Windsor, are in awkward locations making the job doubly difficult. Efficient organization, capable of providing answers to the most complex of situations, is the prime requisite in this tremendous undertaking. These requirements, it is felt, have been more than amply met by Ontario Hydro's Frequency Standardization Division, and the Canadian Comstock Company, the contractor working on the mammoth project under Hydro's direction.

W. R. BEECROFT, Ontario Hydro Field Publicity Officer, holds a floor polisher submitted by one inventive customer for alteration. Home-made, it consists of scrubbing brushes, small motor, and pieces of pipe and wood.





# STATUS QUO

**No general increase  
in wholesale cost  
of power  
to municipalities  
for 1954.  
Chairman tells  
Districts 7 and 8  
O.M.E.A. delegates**



PHOTOGRAPHER "on the prowl" found Kenneth Wilton and Miles Duffus, Ontario Hydro, London, and Warren P. Bolton, Chairman, Windsor Utilities Comm. lining up to pay registration.

**S**PEAKING at the joint annual meetings of Districts 7 and 8, O.M.E.A., at Windsor on January 29, Hydro Chairman Robert H. Saunders announced that no general increase in the wholesale cost of power to the municipalities will be necessary for the year 1954.

"I am also able to say that, in the opinion of the Commission, the present rural rates are adequate, and that no increase will be necessary during the year," he stated.

During his address to the 150 or more delegates, Mr. Saunders dealt at length with the cost of the large frequency standardization program, stating that the final cost of the project would be approximately \$400,000,000. Up to the end of 1953, he continued, the Commission had spent about \$160,000,000 on changeover, \$24,000,000 of this amount having been expended on equipment which will be used during the remainder of the program—leaving a net cost of \$136,000,000.

There is a vast difference between the program being carried out today and that envisaged when the original estimates were made in 1947, the Hydro Chairman stated.

With an increase of 120,000 or more customers requiring changeover, there has been a parallel increase of 1,293,000 appliances to be altered. This is due partly to the increase in the number of 25-cycle customers since 1947, and to the greater number of frequency sensitive appliances per

customer (2.7 estimated in 1947, actually approximately 4 per customer today).

## More Oil Furnaces

Emphasizing the latter point, the speaker referred to the fact that there are now over 350,000 oil-burning furnaces in Ontario, compared with about 87,000 in 1947, and "most of these are in the 25-cycle area and will have to change them over," he stated.

"Please remember that the additional cost is the direct result of increased costs of labor, material, and supplies, dramatic increase in our population, and a higher standard of living for the people of this province."

Turning to the question of power resources, Mr. Saunders lauded the role of the Commission's fuel-electric stations in supplementing the reduced output of hydro-electric plants on the Ottawa River—due to low water conditions in the past few months. He also stressed the important advantages accruing from the recent interconnection with Michigan's Detroit Edison system.

## W. Ross Strike Speaks

Guest speaker at the evening banquet W. Ross Strike, Q.C., Second Vice Chairman, called upon O.M.E.A. members to make every effort to strengthen their Association and expand its influence.

"The stronger you become, the better it will be for the province," he said. Mr. Strike paid tribute to the



**DISTRICT 7 Officers** elected at the meeting included: Front row, l. to r., P. R. Locke, St. Thomas, 1st Vice-President; H. R. Henderson, Woodstock, President. Standing, l. to r., W. B. Curtis, Aylmer, 2nd Vice-Pres., and Morley Wass, Granton, C. G. Fraser, Parkhill, Directors.

selfish service of O.M.E.A. President, Lt. Col. A. A. Kennedy and Secretary-Treasurer D. P. Cliff. "With so many meetings to attend, their positions are becoming quite onerous," he observed.

In his remarks, Mr. Strike described a panel discussion on atomic energy which he attended in New York City recently. During that discussion, Mr. Strike said, he gained the impression that it would be some time before the United States would amend its Atomic Energy Act to permit other than government agencies to have wide access to fissionable material. Unless a change is made in these regulations, Canada and other countries engaged in atomic studies might push ahead of the U.S. in the development of atomic energy for industrial use.

He told his audience that Ontario Hydro has been connected with Canada's atomic power development for the past two years through its General Manager and Chief Engineer—Dr. Richard L. Hearn—who is also a Director of Atomic Energy of Canada Limited.

"While the study of power generation by atomic reactors is still in the infancy stage, we're on our way in Canada, with every reason for confidence."

Another impression gained at the New York gathering, Mr. Strike recalled, was the superior method Canada has for "getting things done" by direct action of the government in power, in contrast with the delays encountered in the U.S. by "interminably long public hearings."

As examples, the speaker cited the St. Lawrence Seaway and Power Project, and also the Ontario Hydro-Detroit Edison interconnection. "It took us only a few days to get permission from Ottawa for this power exchange—it took Detroit Edison a few years!" Ontario Hydro crews, he said, had the job of bringing the cables across the river from the U.S. to the Canadian side at both sites and did a perfect job.

Mentioning a subsequent agreement executed with Niagara Mohawk Power Corporation, he said the Commission



**THIS smiling sextette**, front row, l. to r., Ralph Burr, Point Edward, Vice-President; Stanley Thomson, Chatham, President; W. P. Bolton, Windsor, Director; Back row, l. to r., Thomas Cada, St. Clair Beach, and Gordon Fuller, Windsor, Directors, and R. S. Reynolds, Chatham, Secretary-Treasurer were elected by District 8 delegates to the 1954 executive committee during meeting.

(Continued on page 20)



## DISTRICT 7 & 8 O.M.E.A.

(Continued from page 19)

now has such arrangements for power interchange with Quebec, Michigan, and New York, and hopes to have one with Manitoba "eventually."

### Uniform Constitution

During the separate business sessions, each district association endorsed, with minor amendments, the uniform constitution now being presented to all district groups. Also approved by delegates of both groups for presentation at the annual meeting of the parent organization was a resolution dealing with the method of taking over Hydro plant and equipment from annexed areas. In the preamble to the resolution, it was pointed out that the Ontario Municipal Board had ordered various urban municipalities to annex lands in adjacent rural municipalities, with the result that the hydro-electric commissions of such urban municipalities have been required to purchase and take over the plant installations of Ontario Hydro in such annexed areas. Continuing, the resolution pointed out that certain problems had arisen as to the basis of payment for the annexed plant and the disposition of certain money previously paid by customers in the annexed areas towards sinking fund and other reserves in connection with such plant and installations.

The resolution asked that the matter of policy with respect to the basis upon which urban Hydro commissions shall be required to take over such plant and installations be referred to the Executive Committee of the O.M.E.A. or to such committee as it shall see fit to designate for investigation and report.

A resolution presented by the LaSalle P.U.C. by which commissioners would be reimbursed a set fee for attendance at any meetings or functions concerning business pertaining to their office was approved by the delegates of District 8 and sent to the O.M.E.A. Legal Committee for report and presentation at the annual meeting. District 8 delegates also approved a resolution presented by Windsor Utilities Commission asking the O.M.E.A. Executive to approach Ontario Hydro with the suggestion that Red Seal Adequate Wiring specifications, particularly with reference to entrance panels, be incorporated as a minimum

(Continued on page 23)



DELEGATES W. E. Nye, Amherstburg; George Hayes, St. Clair Beach; Paul Ducharme, Tecumseh, and Thomas A. Cada, St. Clair Beach, were "talking Hydro" when "caught" by the lens.



ENTIRELY oblivious to the photographer's proximity were Harvey Hawke, veteran Galt Commissioner, C. J. Merner, New Hamburg, and N. A. Grandfield, Immediate Past President, A.M.E.I.



# CHAIRMAN'S REPORT



E. W. BROWN, Secretary-Treasurer of Woodbridge Hydro-Electric Commission for past 40 years, centre, is congratulated by Woodbridge Commissioners Clarence Graham, l., and Reeve F. V. Armstrong, r.

**Fighting battle with prosperity and higher standard of living, Robert H. Saunders tells O.M.E.A. audience in discussing increased cost of changeover program**

ONTARIO Hydro is not expected "to take a major role in the distribution of natural gas in the province." This was revealed by Chairman Robert H. Saunders when he addressed the annual meeting of District No. 4 of the Ontario Municipal Electric Association in Toronto on January 28.

"It was suggested at one time that Hydro should have a major connection in this field," said Mr. Saunders, who was guest speaker at the Association's afternoon business session. "I doubt if this will take place; rather, it will be more of a minor connection."

Emphasizing that he could not speak extensively on the matter "at this time," the Chairman stated that while the future status of natural gas in Ontario is "still very much in the exploratory stage . . . we should encourage the use of this additional natural resource in the interests of the Canadian economy."

Dealing with the question of using natural gas as a substitute for coal at the Commission's fuel-electric stations in Toronto and Windsor, Mr. Saunders said "it would appear, at the moment, that we could possibly obtain natural

gas, on an interruptible basis, at a price not greater than the price per coal per B.T.U."

"That being the case, and in the interests of the economy of this country we would be favorable to the use of natural gas, protecting ourselves, of course, by having a supply of coal, and the boilers being in such a position that they could take either natural gas or solid fuel heat."

Turning to Hydro's huge program of frequency standardization, in which the 145 O.M.E.A. delegates showed considerable interest with their questions, Mr. Saunders expressed the "optimistic" hope that "the ultimate cost of this project will not exceed \$400 million."

## **Battle with Prosperity**

"Some people are surprised at the increase in the cost of this program," he continued, "but we didn't make any mistakes in our original estimates; we are not fighting to maintain those original estimates; we are fighting a battle with what we cherish most and hope will continue—our rising level of prosperity."

Mr. Saunders pointed up the fact

that the original cost estimates for frequency standardization were "correct in the light of the conditions and our requirements at the time . . . but today we are dealing with a much larger program in which our great prosperity, our industrial advance and our higher standard of living has upset all our calculations and estimates." He cited figures to show the phenomenal increase since 1945 in the number of refrigerators, washing machines, television sets, radios, and oil burners owned by the people of Ontario.

"Even more important," Mr. Saunders added, "is the fact that had we not gone ahead with frequency standardization we would have had a power shortage in Ontario today which would have brought cutbacks, blackouts and restrictions far more serious than those imposed in 1948." He explained that among the great benefits of standardization has been Hydro's ability to establish power line interconnections with the 60-cycle systems of neighbouring power utilities in the United States whereby electrical energy could be exchanged as required.

*(Continued on page 22)*





E. R. LAWLER, retiring Manager of Ontario Hydro's Toronto Region, left, receives presentation from Ronald Harrison, Scarboro Twp. Seated—E. B. Griffith and Chairman Bert Merson.



RETIRING President W. P. Dale, Brampton, I., receiving presentation from A. O. Leslie, Scarboro Twp. Seated l. to r., Toronto Commissioner John McMechan, Mr. Griffith, and Mr. Merson.



THIS GROUP, including, front row, l. to r., Mayor A. D. Norris, Mimico, Director; D. G. Moffitt, Toronto, Secretary-Treasurer; W. E. Wright, Toronto Township, President; Bert Merson, Toronto, 1st Vice-President;

Standing—C. J. Ellerbeck, East York Township, Director, W. Dale, Brampton, Past President, and J. A. Orr, North York Township, Director, were named 1954 officers. Dr. V. S. Wilson was absent.





CHECKING program of annual meeting held in Toronto, January 28, were Colin Smillie, R. W. Philip and C. G. Riddle, of Milton, and R. H. Philip, Manager, Trafalgar Township P.U.C.

clamation work over 10 miles of dock wall have been built, exclusive of the western breakwater and channel entrance, more than twice the distance from Queen Street to Lawrence Avenue. A perfect co-ordination between water, rail, highway and air has been established.

#### Presentations

The well-attended gathering saw A. O. Leslie, Scarboro Township, present retiring District No. 4 President, W. P. Dale, with an electric clock. Ron Harrison, Scarboro, on behalf of his fellow members presented E. R. Lawler, former Manager of Ontario Hydro's Toronto Region, with a wrist watch. Mr. Lawler was recently appointed Consultant, Toronto Region.

Chairman Bert Merson took the opportunity to commend the fine service of Ed. W. Brown who, for the past 40 years, has served as Secretary of the Woodbridge Hydro-Electric Commission. In addition, Mr. Brown has served for 50 years as Municipal Clerk of Woodbridge.—By Denis A. Heeney.

#### No Impact on Rates

Stating that there would be "no sudden impact on rates from increased frequency standardization costs," Mr. Saunders said, "It is our opinion that no general increase in the wholesale cost of power to the municipalities will be necessary for the year 1954. I am also able to say that, in the opinion of the Commission, the present rural rates are adequate, and that no increase will be necessary during the year."

Mr. Saunders also explained that a group of independent outside auditors has been retained by the Commission to very carefully watch the whole matter of costs and ensure that the Commission is kept in a sound financial position."

In thanking the Hydro Chairman for his address, Bert Merson, Chairman of the Toronto Electric Commissioners, declared: "We all admire his frankness in telling the facts of Hydro." Lt. Col. A. A. Kennedy, O.M.E.A. President, later advised the meeting that "it is the job of every local Hydro commissioner to know the problems of his area and to be able to communicate the facts to the Ontario Commission."

At the business meeting, following Mr. Saunders' address, it was agreed that District No. 4 would adopt, with minor amendments, the uniform con-

stitution advocated by the parent body, whereby all Districts could take united action on all Hydro matters.

#### Name Executive

Election of the 1954 executive of District No. 4 saw W. E. Wright, Toronto Township, move up from a Director to President, succeeding W. P. Dale, Brampton. Bert Merson, Toronto, was named First Vice-President, and Dr. V. S. Wilson, Etobicoke Township, Second Vice-President. New Directors are: J. A. Orr, North York; A. D. Norris, Mayor of Mimico; C. J. Ellerbeck, East York, while D. G. Moffitt, Toronto, continues as the District's very able Secretary-Treasurer.

The evening banquet, tendered by the Toronto Electric Commissioners, was highlighted by an address by E. B. Griffith, General Manager and Secretary of the Toronto Harbour Commissioners. Outlining the varied functions of the Harbour Commissioners, Mr. Griffith pointed up the fact that "new lands, docks and piers have been created and built in Toronto harbour to accommodate lake and ocean-going vessels with a 30-foot draft, looking forward to the day of the modernization of the St. Lawrence canal system." Over 1,300 acres of lands have been reclaimed, 1,234 acres on the mainland. As part of the re-

#### DISTRICT 7 & 8 O.M.E.A.

(Continued from page 20)

standard in the wiring code covering rural domestic construction.

#### District 8 Executive

Stanley Thomson, of Chatham, was elected 1954 President by District 8 delegates with Ralph Burr, Point Edward, as Vice-President, Warren P. Bolton and Gordon H. Fuller, Windsor, and Thomas H. Cada, St. Clair Beach, Directors, and R. S. Reynolds, Chatham, as Secretary-Treasurer.

During their business session District 7 representatives endorsed a motion requesting the O.M.E.A., when billing municipalities for membership in the parent organization to include fees for membership in the district association, remitting the amount to the district treasurer when received.

Reflecting his able handling of the position, H. R. Henderson, Woodstock, was re-elected President of District 7, with P. R. Locke, St. Thomas, 1st Vice-President; W. B. Curtis, Aylmer, 2nd Vice-President; Gordon Fraser, Parkhill; Stewart Killingsworth, London, and Morley Wass, Granton, Directors, and H. F. Parker, Woodstock, Secretary-Treasurer.





ROBERT C. McMordie, Ontario Hydro, tables his report as Chairman of the Professional Status Committee at the Association of Professional Engineers annual meeting. Left to right are: G. W. Ames, Sarnia, J. R. Montague, Ontario

Hydro, A.P.E.O. 1st Vice-President; J. Herbert Smith, Toronto, Immediate Past President; Mr. McMordie, W. L. Sagar, 1954 President; J. H. Waghorne, Ontario Hydro, 2nd Vice-President, and H. R. Osborne, Toronto, Councillor.

# Future of the Atom

Many nuclear fission plants, generating electricity for industrial and domestic customers, in operation by end of present century, Ontario engineers told

**F**IRST atomic powered submarine in the world, the United States' "Nautilus," is to be used as the prototype for atomic power plants which will serve industry, the Association of Professional Engineers was told recently by a member of the U.S. Atomic Energy Commission.

Andrew W. Kramer, Chicago, who is charged with the responsibility of classifying atomic information for the AEC, said the U.S. plans to incorporate the same principles of the Nautilus' power plant into its first industrial power plant.

Although the building of the submarine was undertaken as a military project, its designers actually were looking ahead to utilizing the same type of power plant for peacetime uses, he added.

Kramer, an electrical engineer and technical author, spoke at the 12,000-member Association's annual meeting

at the Royal York Hotel. More than 1,200 engineers from all parts of Canada as well as some from the U.S., Britain, Belgium and South America attended.

Kramer said that the proposed industrial atomic plant which was announced last September, likely will supply electrical energy to one of the AEC's production centres, probably the gaseous diffusion plant now being built in Pike County, Ohio. He added a vast amount of electrical energy will be required at this centre.

In effect, the atomic power plant would supply the heat which would be converted into electrical energy by turning the heat into steam and then through a turbine into an electrical generator. Kramer illustrated his point further by stating that the energy from one pound of fissionable material is equal to the energy from 3,000,000 pounds of coal.



CANADA'S oldest living engineer, J. B. 1, right, pioneer mining executive, shown with Andrew Kramer, member of Atomic Energy Commission, who was speaker, and President Sagar, was presented with coveted Engineer's Medal during meeting, becoming the fourth person to receive it.

When this energy is released at it causes the explosive power of atomic bomb. If it is released over an extended period of time, one has a source of heat which, in turn, can be transformed into electrical energy.



### Similar to Canadian Reactor

This heat is generated in a reactor similar to the one at Chalk River, Ontario. (Ontario Hydro is presently carrying out a study in conjunction with Atomic Energy of Canada Limited at Chalk River to determine the feasibility of developing electrical power from an atomic reactor). The atomic submarine, Nautilus, is powered by a reactor known as the STR—Submarine Thermal Reactor. It involves the use of thermal neutrons which have been slowed down to the velocity of ordinary molecules.

Kramer announced that a new atomic submarine—the Sea Wolf—now under construction—will use neutrons of intermediate speed, with the reactor using liquid sodium, in the same way that a “breeder” reactor does.

The Nautilus reactor uses ordinary water as the heat transfer medium, he explained. This water circulates in a closed system composed of the reactor, pumps and a heat exchanger. The heat is transferred to water which is then turned into steam to operate the turbines which drive the propellers.

Turning to industrial application of atomic energy, Kramer said that in the last four or five years, many U.S. manufacturing and electric utility companies have displayed keen interest in the development of such plants for general industrial use. However, to date all the work is on paper.

### Restrictions Imposed

“The utilities have either been unwilling or unable to put up the necessary millions of dollars to actually construct a plant,” he said, adding that there were restrictions imposed under the Atomic Energy Act, making it impossible for private companies to proceed with actual plant construction.

“But they have not been willing to make definite offers to finance such projects even if the restrictions were moved.”

### New Plan

However, Mr. Kramer did announce that the Detroit Edison Company whose system was recently interconnected with that of Ontario Hydro by two line crossings over the Detroit and Clair Rivers at Windsor and Sarnia) had evolved a new approach to industrial atomic power which was expected to prove more economical. The Michigan utility, he said, working with Dow Chemical Company, had

plans for an atomic reactor which looked “extremely promising.”

This plan, he said, entails the use of molten uranium as the fuel, and liquid sodium as the heat transfer agent, thus eliminating graphite, heavy water or other costly special material for creation of an atomic pile.

Mr. Kramer, who has been studying atomic power for 15 years, expressed the belief that such a reactor, creating its own fuel, could run for an indeterminate period, operating at a higher temperature required for economic power generation.

“To date, about 90 percent of all the money spent by the U.S. for atomic energy purposes has been used in the weapons program,” he explained.

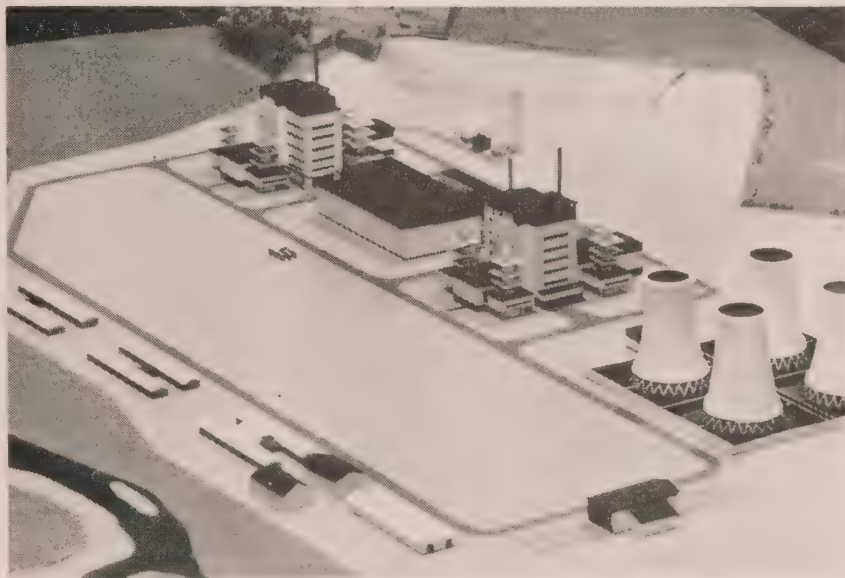
Recently, Mr. Kramer added, the situation has taken a “new and ominous” turn. Countries such as Belgium and South Africa upon whom the U.S. depends for substantial amounts of uranium, now are banking on the U.S. to help them build their nuclear power plants for the future, he said.

“In return for their uranium they are demanding in strong terms that we tell them how to build nuclear power plants.”

### Develop 60,000 Kilowatts

It was due to these factors that the AEC decided last fall to go ahead with the building of a power plant, one which would completely “skip the pilot stage.” Fuel for this plant, he said,

*(Continued on page 26)*



## BRITAIN'S ATOMIC STATION

“VIEW from the air” of a model of the British Experimental Atom Power Station which is being constructed at Calder Hall in Cumberland, England.

This scale model, shown recently in the British House of Commons and on display at the Fuel Exhibition in Manchester, was prepared by scientists of the Ministry of Supply's Atomic Energy Production Division. The model shows the turbine house in the centre, with its attached administrative control and workshop block. On each side are the two reactors, in which heat is generated in graphite-moderated uranium piles. The heat is transferred by gas to the four vertical boilers seen around each reactor. Fans are provided to circulate the gas. They are situated in the low wings on each side of the reactor. The steam passes to the turbine house where it drives four turbo-alternator sets which are similar to those usually employed by British Electricity Authority. The cooling towers are required to cool the turbine condensers in the normal manner.

*(Official British Photo).*



## BIG JOB

(Continued from page 13)

There are three "Hydro Cities" on the job: Chippawa Camp near the intake section; Whirlpool Camp, near the centre of the development, and the third close to Queenston, near the generating station site. These camps are miniature communities in every respect, with accommodation for the workers, recreation hall, and cafeterias. Each has its own fire department and sanitary services, and no crack city brigade ever polished its equipment to a more gleaming surface than the firemen at the camp fire halls. The recreation halls have facilities for bowling, billiards, movies, refreshments and television. Regular church services are held.

As a major portion of the work on the two tunnels has been completed, Chippawa Camp was closed on March 9, with the smaller labor force being more economically accommodated in the Whirlpool and Queenston Camps. Shells of the four main buildings at the Chippawa site will be sold by tender.

### Camp Cafeterias

Good food is a necessity for hard-working men. A sign in each camp cafeteria states that the men can have more food for the asking, and it means just what it says. Each of the three cafeterias can serve 600 at a sitting. Some 5,000 meals a day are provided, while lunches are made up for the night shifts.

Behind the scenes at each cafeteria are spotless, well-equipped kitchens. The weekly shopping list for the Niagara project would stagger most housewives. It included, at peak construction: 6,000 loaves of bread; 14,000 pounds of vegetables; 12,000 pounds of meat; 1,000 pounds of poultry; 1,800 dozen eggs; 1,200 pounds of butter, and ingredients for 2,500 pies and 5,000 pastries.

### Project Hospital

Hard by the nerve centre of the Big Job, the Administration Building, is the 30-bed hospital, which Hydro built solely for the workers on the project. A temporary building, it is decorated in attractive pastel colors. The design was by the Commission architect, Kenneth Candy, in consultation with Hydro's medical authorities, from experience gained on other Hydro developments, such as Des Joachims. The spacious corridors lead from the comfortable waiting-room, into a completely-equipped operating room, X-ray room, consulting room, pharmacy and wards that would be the envy of many city hospitals. In charge of the

hospital is Dr. Donald Grant, who came from the Hydro hospital at Des Joachims and brought much of the equipment with him. He is assisted by Dr. J. Dales Black, four resident nurses, and first-aid men, as well as other hospital staff. Meals for the patients are prepared at the nearby Hydro cafeteria. Opening July 27, 1951, the hospital had handled 1,623 bed patients up to December 31, 1953.

Quite apart from the numerous engineering achievements of this largest Hydro development, is the record of good relations between labor and Ontario Hydro.

With a large construction force working on the development, it is entirely conceivable that difficulties might have developed at one time or another. Yet not one hour has been lost through strike action. This has been due in great measure to the establishment in 1950-51, of the Niagara Development Allied Council, A.F. of L., which represented 17 international craft unions. In fact, this Agreement was characterized by a prominent labour leader as the "most worth-while bargaining agreement in Canada today."

So successful was this agreement, and the one signed with the Ontario Hydro Construction Allied Council, A.F. of L., that in October, 1953, an agreement was signed by the latter and Ontario Hydro on behalf of approximately 9,000 construction workers throughout the province in 98 trade classifications, and representing eighteen unions. This agreement, described as one of the most progressive in Canadian labor history, provided for substantial benefits. Thus the experience gained on this project paved the way for benefits to all Hydro construction men in all parts of Ontario.

This, then, is the Big Job! Its magnitude cannot be contained in one story, or in a number of stories. It is a volume, with its most interesting chapters yet to be written.

The end of the Big Job will be its beginning!

## FUTURE OF THE ATOM

(Continued from page 25)

likely would be enriched uranium. Probable cost of the power plant which would develop at least 60,000 kilowatts would be some \$40 millions.

Kramer concluded his address by predicting that by the year 2,000 nuclear fuels will have become the major source of energy regardless of whether fossil-type fuels are seriously depleted.

No matter what the difficulties are,

they will be overcome. Atomic power is a reality. The problems are many and difficult, but the way is clear, the speaker asserted.

"By the end of this century most of the new large utility plants generating electrical energy for general industry and home use will operate by nuclear fission and they will be safe enough to locate within city limits. They will be clean with no smoke, fly ash or fumes," he prophesied.

## THE STAGE IS SET

(Continued from page 6)

Power is transmitted from the motor to the axles by automotive-type drive shafts in order to reduce noise, vibration and weight. Swift and smooth starts are made possible by automatic acceleration and an excellent and reliable braking system permits safe, fast even stops.

Toronto's subway system will carry out operations for approximately two hours each day—long enough to clean, polish and, if necessary, wash the 104 cars in the system.

The last car will leave the Union Station at approximately 2:00 a.m. each day for the Davisville yard. First car will start out from Eglinton at approximately 4:00 a.m.

Provision has been made to protect both public and workers from being struck down by the swiftly moving cars. The edges of the station platforms have a carborundum surface to minimize the danger of passengers slipping and falling to the tracks. Openings every 20 feet in the centre, particularly between the tracks afford refuge to workmen caught on the tracks, as well as relieving air pressure and saving material.

At both terminals, Union Station and Eglinton, passenger platforms have been built between the two tracks, while at other stations there are separate platforms for northbound and southbound passengers.

Toronto's subway is acknowledged to be one of the most complex electrical installations yet undertaken in Canada and presented many new problems for contractors. Well over one thousand electrical blueprints were required.

As Canada's first subway, the Toronto rapid transit system occupies a prominent place in the growing list of outstanding Canadian engineering achievements. It was completely planned, designed and built under the direction of T.T. Gineers, and officials, in consultation with recognized specialists in the various aspects of rapid transit development.



# ALONG HYDRO LINES



## Starts 17th Year As Commissioner

PERCY R. LOCKE was elected Chairman of St. Thomas Public Utilities Commission, succeeding Commissioner William A. Allan. Mr. Locke was first elected to the Commission for a two-year term in December, 1937, and he has been a member ever since. When he completes his present term of office at the end of this year, he will have served with the commission for 17 years.

## Port Stanley P.U.C. Enjoys Good Year

PORT STANLEY'S industrial and business growth is reflected in the record of the Port Stanley Public Utilities Commission's 1953 activities. It was especially noticeable in the ever-increasing demand for industrial Hydro power.

The Commission ended the year with a total of 1,146 consumers, of which 17 are industrial power users; 118 are commercial power users, and the remainder domestic users.

The local commission last year found it unnecessary to increase its Hydro rates. Among the major improvements carried out in 1953 by the local commission was the new lighting system in the summer resort town. At the Commission's recent meeting, Harmon A. Clark was re-elected Chairman.

## Napanee P.U.C. Chairman Bereaved

ONTARIO HYDRO NEWS has learned with regret of the recent passing of Mrs. J. H. Moffat, beloved wife of the Chairman of Napanee Public Utilities Commission, and mother of T. J. Moffat, 1953 Chairman of Listowel P.U.C. Born at Stratford, the deceased had lived in Napanee since 1913 when her husband became associated with the Gibbard Furniture Company of which he is now Vice-President. Another son, James Moffat, of Montreal, and seven grandchildren also survive.

## Big Light Bill For Canada

A YEARLY electric light and power bill of approximately half a million dollars is paid by the Government of Canada to the Ottawa Hydro-Electric Commission. This was recently revealed in the list of Ottawa Government buildings whose electricity accounts come to upwards of \$5,000 a year.

A total of these buildings shows a gross annual bill of \$484,024 but scores of other smaller buildings put the mass figure over the half-million dollar mark, amounting to a grand total of \$827,963.92.

## Retires After 25 Years As Hydro Executive

AFTER 25 YEARS as Secretary of the Drumbo Hydro-Electric System, John McVittie, aged 73, one of the senior residents of the municipality, retired at the end of last year.

Keenly interested in the welfare of the community and always willing to shoulder a share of the work, Mr. McVittie has been selected for numerous administrative jobs during his career, including serving as village trustee for many terms, a township bailiff from 1937 to 1950, and a township constable for seven years.

He has been succeeded as Secretary by Albert Berrill. Although retired from his several offices, Mr. McVittie maintains a constant interest in village affairs and is readily available for advice gained from years of experience.

## Named Chairman For 15th Term

E. NEWTON COOPER was re-elected Chairman of the Meaford Public Utilities Commission for his 15th consecutive term at a recent meeting of the local commission.

A review of the financial and expansion activities of the commission shows a picture of progress and stability. Meaford water rates, which are the lowest in the province of Ontario, have been sustained for a quarter of a century, while the Hydro rates have not been advanced since 1933 — at which time they were reduced, not increased.

In December, 1943, the peak load in the municipality was 662.7 horsepower. In December, 1953, the peak was 2,244 horsepower, revealing the tremendous Hydro expansion which has taken place in the area.

At the present time, a complete survey of the Hydro lines within the town is being made, and a replacement program is being carried out. Heavier wire and heavier transformers are being installed.

## Dundas Hydro Superintendent Dies

ROBERT Ormond (Nick) Stalker, Hydro Superintendent of the Dundas Public Utilities Commission for the past 26 years, died recently in General Hospital after a long illness.

Born at Stratford, Mr. Stalker had been previously employed by Hagersville Hydro. He was one of the original members of the Hamilton Aero Club. Jack Wilson, formerly on the staff of Ontario Hydro's Dundas Operating Area, has been appointed to succeed the late Mr. Stalker as Dundas Superintendent.

## Owen Sound P.U.C. Enjoys Good Year

REVENUE from the sale of electricity in Owen Sound in 1953 is expected to reach an approximate total of \$500,000, setting an all-time high total. Lt. Col. A. A. Kennedy, Chairman, Owen Sound Public Utilities Commission, and Mayor Percy England, both expressed satisfaction on the healthy financial condition.

## St. Catharines P.U.C. Starts 5-day Week

ST. CATHARINES P.U.C. has commenced a 5-day week operation, it has been announced by Manager Ray Pfaff. The new staff hours are the result of union negotiations which were initiated last summer, and the agreement for a 5-day week went into effect on January 25. However, the local commission's offices remained open on Saturday mornings until February 13, to permit customers to adjust to the change in hours.





CONGRATULATING Mr. Walters on his recent 75th birthday were E. G. Gurnett, left, and P. T. Seibert, right, Manager and Personnel Officer, respectively, East Central Region.

## NAPANEE MANAGER ACHIEVES UNIQUE RECORD

**A** RECORD, believed to be unique in the annals of municipal utility operations in Ontario, has been achieved by C. A. Walters, Manager of Napanee Public Utilities Commission.

Mr. Walters appears to be the only utility manager who built the municipal steam electric plant and distribution system and is still Manager in the same location. *Ontario Hydro News* is also pleased to report that Mr. Walters celebrated his 75th birthday on January 13, at which time his many friends paid a surprise visit to his home to wish him well.

Born in Napanee, Mr. Walters, after two years high school, was employed by the Bell Telephone Company. In 1898 he was made Bell Telephone local Manager. In 1900 and 1901, he was employed by the Rochester Telephone Company. For three years he worked with his father in the tailoring business. In 1904, the municipality of Napanee employed him to supervise construction of a steam electric plant and the necessary distribution system. At that time, he took a course in electricity to better fit him for his job. When the plant was completed in 1906, he was made Manager.

In 1912 the Seymour Power Company purchased the electric system of

Napanee and he was made Manager of both the electric and gas utilities. In 1916, the Ontario Government purchased all of the assets of Seymour Power Company and turned them over to Ontario Hydro to administer. (The gas plant was discontinued in 1921.) Mr. Walters continued in charge, and in the years ahead was to take a very active interest in promoting rural extensions.

In 1929, Napanee purchased the local system and Mr. Walters was retained as Manager. Because of his excellent administrative abilities, Ontario Hydro's rural services in the Napanee Operating Area are also under his direction.

Mr. and Mrs. Walters have raised three children: Dr. Allan Walters, a neurologist specialist in Toronto, Charles Walters, an interior decorator with T. Eaton Company, Toronto, and Margaret, Mrs. Frank L. Ship, Berkeley, California.

A family with distinctive musical tastes, both Mr. and Mrs. Walters and their three children, who were taught to play several musical instruments at an early age, formed a local orchestra, Mr. Walters could play the drums and several other instruments, and with his wife as pianist and their family they provided music for many dances in Napanee and surrounding communities.

## Appliances Popular At St. Thomas

ST. THOMAS Public Utilities Commission reports that 3,120 or 55.3 per cent of the total number of its domestic electrical customers now own electric ranges. This reflects the excellent record of growth of the local utility, especially when 20 years ago there were only 1,420 ranges, Commissioner George Lang pointed out recently. He expressed the opinion that few municipalities in Western Ontario had a higher percentage of electric ranges in use.

The St. Thomas utility also reports that 2,574 flat-rate water heaters were in service, a gain of 78 for 12 months. This represents more than 45.6 per cent of all the Hydro domestic customers in St. Thomas. It was further announced that St. Thomas.

## Use of Power in Galt Tripled Since 1938

GALT'S consumption of electric power has increased rapidly over the years. The current power bills paid by the Galt public utilities commission being three times what they were in 1938.

In that year, the local commission used 8,000 horsepower. In the month of December last year, Hydro users in the municipality used in excess of 24,000 horsepower — the highest monthly record.

## Starts 24th Term At Listowel

E. M. CREIGHTON commenced his 24th term as a member of the Listowel Public Utilities Commission when he was named Chairman at a recent meeting, succeeding Thomas J. Moffatt. Mr. Creighton now enters his sixth term as Chairman.

The first action of the new commission was to announce a 10 per cent increase in water rates, necessary to place the department on a paying basis. According to the commissioners, however, with this increase, Listowel continues to enjoy among the lowest water rates in the province.

Mr. Walters and his three children were experts on the slack wire, spending many hours in practice at the Walters' summer home. Dr. Allan Walters, while attending the University of Toronto, was a noted track star, setting several records.



# This and That

## Engineer-Artists

To those who believe that engineers have no interests outside the confines of their own profession, we offer the example of the Association of Professional Engineers of Ontario. For three years now, members of this large group have exhibited their paintings at a private showing held in conjunction with their annual meeting. This year after the annual meeting a public display of some 60 pictures was arranged at the Odeon-Toronto Theatre and created much favorable comment among movie patrons.

## Hydro Artist

Among "the well-known engineer-painters," to quote the *Toronto Globe and Mail*, is Ontario Hydro's Director of Frequency Standardization, Harry H. Leeming, who, for many years, has exhibited at the Association "show." This year, he was represented at the public exhibition in the Toronto theatre by two canvases. At the annual meeting exhibit he had five paintings on display. Mr. Leeming has shown many of his paintings at the Hydro Art Exhibition, sponsored by the Ontario Hydro-Electric Club, which has become quite an institution!

## Red Cross Appeal

Just a note to remind our readers that March is "Red Cross Month," when the Canadian Red Cross Society will be launching its annual appeal for financial support across Canada.

## Congratulations

A recent letter from Manager J. A. Higgins of Perth Public Utilities Commission extended congratulations on the article, "Perth, Past and Present," in our February issue. Among the first municipalities in Eastern Ontario to sign a post contract with Hydro (1918), Perth is one of the 320 post-contract Hydro municipalities in the province today.

## A Composer Too?

Sir Adam Beck, first Chairman of Ontario Hydro, was a man of many accomplishments, but to the now lengthy list has been added another achievement. Vernon Clapp, a member of the staff of Hydro's Survey Department—an "old-timer," you might say, for he has been associated with the Commission since the survey for the first Gattineau line in 1926—recently told us about the tribute which his 8-year-old son, Christopher, unwittingly paid the Hydro knight not long ago.

## Water Music

The Clapps have a comprehensive collection of recordings, ranging from Glen Miller to Beethoven. One night a neighbor asked Christopher to name his favorite classical selections. Without hesitation this young man replied: Beethoven's 3rd Piano Concerto and Sir Adam Beck's 'Water Music.' Water played quite a part in Sir Adam's life, and

probably the sound of falling water was music to his ears, but this is the first we knew he had harnessed it in more than one way!

## About Birds

When Canadian Westinghouse recently built apparatus for Calgary Power's expanding Ghost development, company engineers were sure that the utility would find the equipment completely satisfactory. But they didn't count on unsolicited support from certain Western feathered citizens to prove the point.

When a 138-KV circuit breaker arrived at Radnor, Alberta, a group of woodpeckers either mistook the unit for some new type of tree, or else they decided to carry out a preliminary inspection of the bushings. At any rate, they drilled large



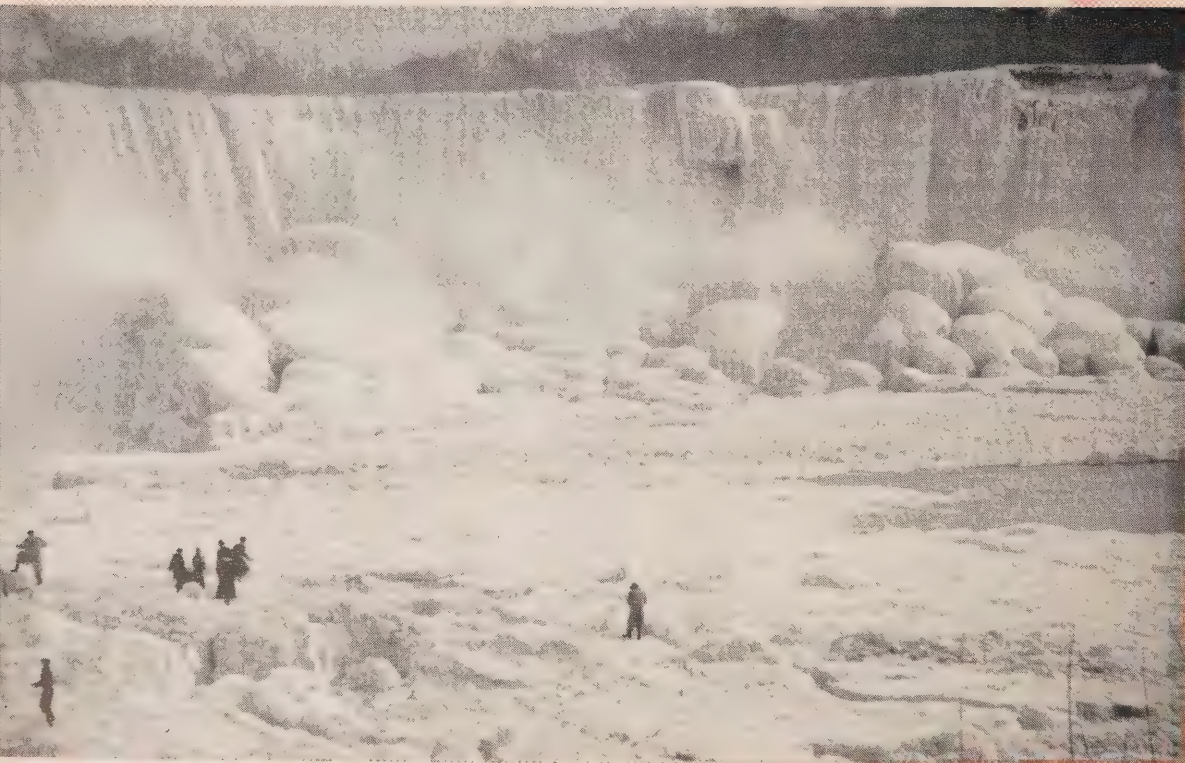
holes in the bushing wrappers and then departed, apparently satisfied with the design. They were soon followed by a delegation of swallows, who moved into the ready-made apartments, and it looked as if they were about to set up light house-keeping. Time came to move the apparatus across country to the Ghost plant and the swallows found their lease broken before they could even move in the

furniture. However, they didn't give in easily to the eviction notice, because they accompanied the breaker all the way to the installation site. Although the swallows lost their home when the wrappers came off the bushings, they were able to find other quarters without trouble. And fortunately, no small swallows were found. Or should we say, no small gulps?

That is one story with a happy ending. But there are instances of our feathered friends playing havoc with electrical equipment, particularly wooden poles. Not long ago, Ed. Parsons, of the Commission's Accounting Department was driving in the Kleinburg district, north of Toronto, when he came across a Hydro pole which had fallen prey to some avian appetite, possibly woodpeckers, necessitating a stubbing treatment. In the accompanying photograph, Mr. Parson's five year old daughter, Marilyn, is indicating the size of one of the "meals" which the pole provided.



NIAGARA ICE BRIDGE





ONTARIO HYDRO

# News

CONVENTION ISSUE

APRIL, 1954







## THE KEY TO ACHIEVEMENT

IT has been said that co-operation is "the golden key" to accomplishment. Speaking at the recent O.M.E.A.-A.M.E.U. Convention in Toronto, Chairman Robert H. Saunders mentioned several examples of the benefits enjoyed by Ontario power users as the result of inter-provincial, national and international co-operation.

It is highly significant that approximately 60 per cent of Ontario Hydro's present peak capacity, i.e., some 2,900,000 horsepower out of a total of 4,779,000 h.p., is the direct result of co-operation between Quebec and Ontario, and between the United States and Canada. On the Ottawa River, because of co-operation between Ontario and Quebec, Ontario has a peak capacity of 1,048,300 horsepower. Agreements between Ontario and Quebec provide an additional 847,200 horsepower.

Back in 1948, as Mr. Saunders recalled, the Canadian Government allowed the Commission to pass an additional 2,500 c.f.s. through the Welland Ship Canal during the non-navigational season. This increased the energy output from DeCew Falls by 1¼ million kilowatthours a day. Since the use of this water at DeCew would have deprived other Niagara area plants, the Federal Government entered into an agreement with the United States to increase the overall diversion by this amount. In the fall of 1950, when restrictions again appeared unavoidable, by virtue of increased power demands imposed by the Korean War, the Rt. Honorable C. D. Howe, as Acting Minister of Transport, permitted the 2,500 c.f.s. to be drawn through the Welland Ship Canal during the navigational season as well.

Last fall, with a drastic shortage of water existing on the Ottawa River, co-operation between Ontario's Prime Minister, Leslie M. Frost, the Hon. Lester B. Pearson, Canadian Secretary of State for External Affairs, and Washington officials, Ontario Hydro was able to complete two important interconnections with the Michigan system of Detroit Edison Company. The value of these interconnections was further demonstrated in striking fashion earlier this month, when two serious explosions damaged two of the generating units at Ontario Hydro's Richard L. Hearn fuel-electric station in Toronto. It has been deemed necessary to close down this important plant for an indefinite period. But, due to the excellent co-operation of the Detroit Edison Company of Michigan, the Niagara Mohawk Power Corporation, Hydro's Quebec suppliers—the Gatineau Power Company and the MacLaren-Quebec Power Company—as well as Polymer Corporation at Sarnia, substantial quantities of additional power have been made available to customers of the Commission, thereby supplementing the temporary loss of output from the Toronto station.



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Authorized as second class mail,  
Post Office Department, Ottawa.

## CONTENTS

	Page
Among the Speakers	1
Another Busy Year	2
Canada Among the Foremost	3
Lively Debates	4
Urges Closer Relationships	5
873 Years' Service	10
Increasing Demands	11
Among Those Present	12
Convention Caricatures	13
Pension Plan	2
Elect 1954 Officers	2
Continued Progress	2
System Builders	2
Convention Candidis	2
Tribute to a Veteran	3
C.S.A. Turns Sod	3
Wonderful Co-operation	3
Along Hydro Lines	3

## COVER SHOTS

A cross-section of the 881 O.M.E.A.-A.M.E.U. delegates attending this year's annual convention is shown in the registration photograph on our front cover this month.

The bridge in the background of our back cover photo, believed to be older than the unique Hydro poles mentioned, is being dismantled to be replaced by a "rolled-fill" causeway.

Material published in Ontario Hydro News may be reprinted without permission. Most photographs are obtainable on request. If required, stereos will be provided.





W. P. DALE  
Brampton



W. E. WRIGHT  
Toronto Township



# AMONG THE SPEAKERS



DENNIS HERRING  
Sarnia

DR. DAVID A. KEYS  
Chalk River



CARL BREMICKER  
Minneapolis, U.S.A.





CHAIRMAN ROBERT H. SAUNDERS

# ANOTHER BUSY YEAR

## Hydro Chairman Announces \$976,000 Rebate to Municipal Hydro Systems

**A**PPROXIMATELY 200 or more Ontario municipalities will receive rebates on their 1953 power bills from Ontario Hydro amounting to about \$976,000, of which \$22,000 will be paid to municipalities in the Thunder Bay Region. This figure added to the last nine years makes a ten-year total rebate of \$22,756,308, announced Chairman Robert H. Saunders in making his annual report to the O.M.E.A.-A.M.E.U. delegates during their Toronto convention recently.

Referring to his statement in October, 1952, that, in the future, the interim rate would more closely represent the actual cost of power, Mr Saunders explained that some municipalities would, of course, receive debits for last year.

Based on a tentative examination of the estimated municipal operation results for 1953, it is anticipated that all, except five or 10 municipalities, will have adequate surpluses from their 1953 operations to absorb the debit charges.

"Approximately 50 per cent of the municipalities receiving a debit will find that the total amount involved is less than \$1,000, and only 10 of the remaining debits will be over the \$5,000 mark," said Mr. Saunders.

"The 1953 cost of power in the Niagara Division includes the levy for frequency standardization, which was increased last year, and which will be continued until the program is fully amortized—we believe in 1970," reported the speaker. "In the Georgian Bay and Eastern Regions (the 60-cycle areas), no levy for frequency standardization has been made against the municipalities since 1950."

### First Steps

However, in all municipalities of the Southern Ontario System, the 1953 cost of power includes the first steps in equalizing the cost of bulk transmission throughout this System, Mr. Saunders added.

"When it was decided to put this plan into operation, it became evident that it would cause a dislocation in the local rates (in some municipalities favorable, in others unfavorable) if the changes were effected in one year. Accordingly, it was decided that the cost should be computed on the basis of introducing this necessary change over a three-year period—1953 to 1955. In other words, in 1955, all municipalities in the Southern Ontario System will be paying an equalized kilowatt rate for bulk transmission in their cost of power," Mr. Saunders informed the delegates.

Discussing the present rate structure, Mr. Saunders announced, amid warm applause, "it is our opinion that a general increase in rates to the municipalities will be necessary for the year 1954. I am also able to say that, in the opinion of the Commission, the present rural rates are adequate, and that no increase will be necessary during the year."

### Frequency Standardization

In his report on Hydro's frequency standardization program, Mr. Saunders stated that, to the end of December, 1953, a total of 1,925,730 pieces of frequency-sensitive equipment had been standardized for 374,205 customers of all classes. In addition, 277,205 clocks, fans and other similar equipment had been handled.



"Preliminary figures up to the end of 1953," the speaker said, "show that our expenditures on frequency standardization of the rural distribution system amounted to \$650,000, all of which has already been provided for in the rural rates."

Besides this rural standardization, \$139,069,750 was spent on changeover of customers and Hydro's supply facilities. In addition, \$25,277,164 was spent in respect of equipment and materials for future conversion work, the speaker added.

A total of \$153,900,000 of this expenditure on frequency standardization has been financed internally and the balance, or approximately \$10,400,000, has been financed externally by debentures."

Mr. Saunders, referring to the study prepared by Stone and Webster Engineering Corporation, stated that the cost of the enlarged frequency standardization program might reach 2½ times the original estimate made in 1947.

Among the factors contributing to this increase:

1. In 1947 the program called for 697,400 domestic customers with an average of 2.7 frequency-sensitive items per customer. Today, the program involves 794,100 domestic customers with an average of four frequency-sensitive items per customer.

2. The original program called for changing over frequency-sensitive items owned by 72,600 commercial customers. Today's program is for 93,600 commercial customers.

3. Originally, it was estimated that there were 14,300 power customers. Today, 17,000.

"It is very obvious why the frequency standardization program of today is vastly different from the program visualized in 1947, and consequently why the cost will greatly exceed the original estimate," said Mr. Saunders.

### Television Sets

For example, there was a television set for every 12.357 of the population for a total of 396,285 at the end of 1953. In 1947 there were no television sets in Ontario. The load represented by these sets is 118,885 kilowatts—equivalent to the combined December, 1953 peak loads of Aurora, Barrie, Bowmanville, Brampton, Brantford, Dundas, Galt, Grimsby, Hespeler, Lindsay, Long Branch, Newmarket, Niagara Falls, Waterloo and Whitby.

Underlining his contention that the standard of living in Ontario has climbed steadily, Mr. Saunders said, today there is an electric washing machine for each 4.580 persons; a radio for every 3.984 residents; an electric range for every 7.035 residents; an oil burner for each 14.112 persons; a refrigerator, including gas and kerosene models, for every 4.791 residents, and a vacuum cleaner for each 6.128 persons.

Emphasizing the phenomenal growth in Ontario since 1947 which has influenced Hydro's frequency standardization program, Mr. Saunders pointed out:

1. Ontario now has a million more people than it did in 1947.

2. During 1951, alone, more than 104,840 new Canadians came to Ontario—in 1952, 86,059. The two-year total comes close to equalling the combined population of London, St. Thomas, Kitchener and Brantford.

3. Since December 31, 1947, to July 31, 1953, a total of 6,205 new dwelling units have been built in Ontario, most of them in the area to be changed from 25 to 60 cycles. Each of these new homes today requires 1½ kilowatts, representing an additional load of 208,000 kilowatts or 278,000 horsepower.

(Continued on page 4)

## HYDRO HIGHLIGHTS-1953

(Excerpt from Text of Mr. Saunders' Address)

1. MAJOR additions to transformer and distribution facilities.

2. Installation of the eighth and final unit at Hydro's Otto Holden Generating Station on the Ottawa River, completed last April to give the plant a dependable peak capacity of 282,000 horsepower and completing Hydro's present development of the river where 951,000 horsepower has been harnessed since 1945.

3. Completion of the third unit and the fourth unit at Hydro's J. Clark Keith Generating Station in Windsor, raising its installed capacity at 60 cycles to 354,000 horsepower.

4. The addition of the fourth unit at Hydro's Richard L. Hearn Generating Station in Toronto, which will give the plant an installed capacity of 536,000 horsepower when all units are operating at 60 cycles.

5. Authorization of a pumped storage reservoir and provision for four additional units as required at the Sir Adam Beck No. 2 project which will give the development an ultimate installed capacity of 1,828,000 horsepower.

6. Authorized construction of Hydro's 15th post-war project, the Manitou Falls Generating Station on the English River in Northwestern Ontario which will have an installed capacity of 46,200 horsepower.

7. Authorized a one-unit addition to the Pine Portage Generating Station to serve the growing power needs of the Northwestern area. This addition will raise the plant's dependable peak capacity to 158,600 horsepower in four units.

8. Two interconnections completed with the Detroit-Edison Company which will give some 400,000 horsepower of further protection to the Hydro system.

9. Signing of one of the most progressive agreements in Canadian labor history.

10. A remedial scheme beginning this year to preserve and enhance the beauty of Niagara Falls and provide for more effective use of the river flow for power production.

11. Important developments with respect to the St. Lawrence River power project, rural Hydro electrification, and frequency standardization programs.

12. Announcement of "feasibility studies" to be carried out by Hydro in co-operation with Atomic Energy of Canada Ltd., at an estimated cost of \$200,000 spread over two years.



## OUR ELECTRIC WAY OF LIFE

(Ottawa Evening Journal—March 12, 1954)

**M**R. SAUNDERS, Chairman of Ontario Hydro, had some fascinating statistics the other day for a Committee of the Legislature (Ontario's Legislative Committee on Government Commissions).

Mr. Saunders said, for example, that in this province there are more television sets than oil burners—a TV count last year gave a total of 396,285, and, of course, the figure will be higher now. He estimated one TV for each 12.3 residents of Ontario, though they will not be evenly distributed. For a large part of our population, in the concentration along the United States border and close enough for reception from American stations, TV was commonplace months before it was available to persons out of that narrow border strip.

But, according to Mr. Saunders' figures, there is an oil burner for each 14 persons in Ontario, while one TV is owned by each 12.3 persons or on the average about one to every three families. But these, by no means, are all the electrical devices, appliances or articles found most often in Ontario homes. Again quoting the Chairman of Hydro there is a radio for each 3.9 persons, an electric washing machine for every 4.5 residents, a refrigerator for 4.7 persons, an electric range for every seven persons.

Mr. Saunders finds in these figures evidence that our standard of living in Ontario is high and rising steadily. Certainly that is true, at least when measured by material things, and especially by our electric gadgets. Mr. Saunders mentioned just a few. He could have added food freezers, irons, clocks, razors, food mixers, coffee machines, toasters, water heaters, space heaters, humidifiers, vibrators, and even then the list would not be complete.

In the aggregate all these things account for a considerable part of our available electric power. Mr. Saunders said, for example, that existing TV sets in Ontario use up as much power as the combined peak load of 14 communities—the 14 being Aurora, Barrie, Bowmanville, Brampton, Brantford, Dundas, Galt, Grimsby, Hespeler, Lindsay, Long Branch, Newmarket, Niagara Falls, Waterloo and Whitby.

There is literally no ceiling to this development, and nobody would want a limit set.

4. During the same period, the number of manufacturing plants in Ontario increased from a total of 11,860 in 1947 to about 13,400 in 1953.

5. In 1947, the value of manufactured products in Ontario was \$4,903,472,526—in 1953, the total reached \$8,867,000,000.

Two other factors of paramount importance which must be taken into account, and which are quite beyond Hydro's control are:

1. The increase in labor costs.
2. The increase in material costs.

"Figures issued by the Dominion Bureau of Statistics indicate that over the period 1947 to 1952 there was an increase of 84.9 percent in the average hourly earnings of labor in the heavy electrical apparatus manufacturing industry, and an increase of 51.4 percent in the wholesale prices of iron and non-ferrous metals and their products," said the speaker.

In the light of all these factors, reflecting the tremendous industrial upsurge, and the still higher standard of living among Ontario people today, compared with 1947, "our consultants believe the cost of the program may reach 2½ times the originally estimated. It is my hope that it will not exceed \$400 million," the speaker stated.

### Sixth Anniversary

Observing that he was marking his sixth anniversary as Ontario Hydro Chairman, Mr. Saunders quoted some striking figures to illustrate the growth of Commission facilities in the intervening period:

1. At the end of October, 1947 the assets of Ontario Hydro after deducting depreciation and assistance from the Government for rural construction totalled \$464,803,430. At the end of 1953, assets totalled about \$1,415,000,000.

2. Six years ago, Hydro owned 32,195 acres of land in the province. At the end of 1953—45,000 acres, more than double the 22,286 acres of land area of the City of Toronto.

3. Six years ago, Ontario Hydro owned and operated 5 hydro-electric generating stations. Today it operates 64 hydro-electric and six fuel-electric generating stations—70 plants all—located in almost every section of the province.

4. Six years ago, the Commission's transmission lines measured 9,894 circuit miles. By the end of 1953, the total was 15,251 (8,364 miles of high tension—115,000 volts and over—and 6,887 miles of low tension).

Reviewing Ontario Hydro operations and activities in 1953, Mr. Saunders described it as "another very busy year for Hydro."

In this connection he referred to the fact that the Commission, last year, raised its dependable peak capacity to 4,770,000 horsepower—an 84 percent increase over the 1945 figure.

Incidentally, he continued, by December 31, 1956, Hydro will have increased its capacity by more than 144 percent over that of 1945 in an all-system expansion involving 15 new power sources—both hydraulic and fuel-electric.

"This great organization with its assets of about \$1,415,000,000, and having associated with it 320 cost contract municipalities, plus 12 utilities with fixed rate contracts, is something of which every adult and girl and boy in Ontario can justly be proud."—by H. B. Wood.



# CANADA

## "Among the Foremost"

### Atomic Energy Official Addresses Joint O.M.E.A.-A.M.E.U. Convention



DR. KEYS, L., was introduced to delegates by Dr. Richard L. Hearn, Ontario Hydro's General Manager and Chief Engineer. ▲

CANADA ranks among the foremost in the field of nuclear research, and its facilities at Chalk River for the study of peacetime uses of atomic energy are among the best in the world, Dr. David L. Keys, Scientific Advisor to the President of Atomic Energy of Canada Limited, stated in an address at the 45th annual joint O.M.E.A.-A.M.E.U. convention in Toronto this year.

"We are making intensive investigations to develop an atomic reactor which will produce electrical power on an economic basis," said Dr. Keys. Pointing up the fact that "we can't expect atomic power to compete at first with the present use of hydro-electric power," he said at "the production costs of atomic energy power would come down as we turn more of what we have."

Dr. Richard L. Hearn, Ontario Hydro's General Manager and Chief Engineer, and Director of Atomic Energy of Canada Limited, introduced Dr. Keys. Dr. Hearn referred to feasibility studies now being undertaken by Ontario Hydro, in cooperation with Atomic Energy of Canada Limited, on the application of a nuclear reactor in the production of electrical energy. Dr. Hearn heads the Hydro Group studying the problem.

#### Many Benefits

"We may expect, with conviction, that we shall eventually see atomic energy providing mankind with many benefits, some of which are not even visualized at the present time," said Dr. Keys. Cautious against impatience, he pointed

out that it took 30 years for useful electric power to be developed following Faraday's first experiments demonstrating how it could be achieved, and somewhat less time for Clerk Maxwell's theory of the electromagnetic nature of light to lead to the transmission of messages across the Atlantic by wireless.

Already, he reported, Canada's nuclear reactor at Chalk River—with a power output of 30 million watts—is serving industrial, medical and research purposes. Providing major benefits, for example, are isotopes produced by the reactor. Of various types, isotopes are used for thickness gauges in controlling the thickness of foils and coatings in industrial processes; exploring the distribution of fibres in paper manufacturing; determining the wear of engine parts and jet engines; developing better lubricants; tracing leaks in pipes; to mention only a few industrial applications.

Then there is the therapeutic use of isotopes in the field of medical and biochemical research. Many benefits have already been established in the treatment of malignant diseases with the powerful therapeutic units of Cobalt 60.

#### High Energy Equivalent

"We have been fortunate in Canada," commented Dr. Keys, "in possessing a reactor which can produce these isotopes with the highest specific activity obtainable, and the demand for some of these is greater than we can supply at the present time."

Of particular interest to the municipal

Hydro representatives, was Dr. Keys' report that the energy of one pound of uranium is equivalent to 11,400,000 kilowatt-hours of electrical energy or the energy produced by 360,000 gallons of gasoline or 2,600,000 pounds of coal or 53,000 men working eight hours a day for one year.

Referring to the use of nuclear sources of energy for power purposes, Dr. Keys declared that "such power units will certainly be commercially feasible, but considerable research and investigations with pilot plants must yet be carried out." Nuclear reactors will take the place of the present steam boiler with the advantage that small amounts of nuclear fuel will produce large quantities of energy. Fuel transportation costs will be negligible, and fuel costs will undoubtedly be reduced as better and more efficient methods of separation of the uranium from low-grade ores are developed. Dr. Keys pointed out that reductions in these costs have already occurred in the mining industry by such new methods in ore-dressing as the development of the flotation processes.

Nuclear energy is available, he added, "if we can learn to use it as efficiently as coal." Citing a further example of the tremendous power latency of the atom, Dr. Keys explained that an ordinary 6-volt storage battery used in motor cars, when fully charged will liberate a horse power. The same weight of uranium 235 will release 300 million horsepower.

(Continued on page 21)



# LIVELY DEBATE



ANNUAL BANQUET AT THIS YEAR'S CONVENTION WAS A POPULAR EVENT



# ES

## SPIRITED DISCUSSIONS HIGHLIGHT O.M.E.A. RESOLUTIONS SESSION

WITH Lt. Col. A. A. Kennedy, O.M.E.A. President in the chair, 14 resolutions bearing on Hydro affairs, and three of a congratulatory nature were presented at the recent joint annual O.M.E.A.-A.M.E.U. convention.

While the majority of the resolutions recommended by the Resolutions Committee received approval of the delegates, several revealed widely-divergent opinions and provided ammunition for lively debates.

Arousing general interest was a resolution from the Lindsay Hydro-Electric system asking the Ontario Government to "outlaw" strikes by utility employees. The resolution said in part, "the threat of Hydro interruption as a result of a strike is too powerful a weapon to be placed at the disposal of any group bargaining for personal gain."

Instead of permitting strikes, now banned for police and fire forces in the province, the Legislature will be asked to establish a permanent division of arbitration to deal only with municipal employees within the framework of the Ontario Municipal Board.

Later, the O.M.E.A. also decided to ask, through Ontario Hydro, for legislation to make unions legal entities.

The move to make unions a legal entity was opposed by Henry Walter, Brockville commissioner. He said he opposed any move which might make it possible for a union tinged with Communism to become a legal entity in Ontario.

A resolution from the A.M.E.U. executive committee asked that the Ontario Hydro continue to make available long-life 1,500-hour light bulbs. A suggestion that a promotional campaign on behalf of the bulbs be revived was defeated.

Discussion revealed that the longer life bulb may not be as efficient as the 750-hour and 1,000-hour bulb generally supplied by commercial firms. However, several delegates emphasized, in large companies and in street lighting systems, the high cost of labor for more frequent bulb changes more than offsets the efficiency factor.

From District No. 3, a resolution providing for the annual election of a first vice-president who would become Acting President in the absence of the O.M.E.A. President, was defeated by a narrow margin.

It was pointed out by one of the commissioners that "it would take away the fundamental right of this group to appoint an Executive Vice-President."

An amendment pointing out that the appointment of an Executive Vice-President by the Board of Directors was to be in no way construed as leading to the post of President was defeated as well.

A report of the action taken on each of the resolutions is presented herewith:

*From District No. 3*—WHEREAS the constitution of the Ontario Municipal Electric Association does not provide for the annual election of an officer who shall act as President in the absence of the President, AND WHEREAS the Association has suffered the loss through death, of two Presidents in the short space of six months, THEREFORE be it resolved, that District Number Three, O.M.E.A. recommends that the Constitution of the Ontario Municipal Electric Association be amended so as to provide for the annual election of a First Vice-President who would become Acting President in the absence of the President, AND FURTHER, that this resolution go forward to the Annual Meeting for endorsement. (Defeated).

*From District No. 5*—WHEREAS, a 20-year survey of the fire insurance policies held by member municipalities of The Hydro-Electric Power Commission has revealed that the total of the premiums is far in excess, or approximately four times the value of the fire losses sustained and, WHEREAS, most municipalities are participating in the co-operative Public Liability and Property Damage Policy fostered by the Ontario Municipal Electric Association which, since its inception, has saved thousands of dollars for the Hydro consumers in Ontario through reduction in the individual premiums paid by approximately nine-tenths (9/10), and, WHEREAS,

it is an established fact that tremendous savings could be made if municipalities, acting on a co-operative basis, entered into a contract with the Head Office of a fire insurance company THEREFORE, be it resolved, that the members of District No. 5, Ontario Municipal Electric Association, endorse, in principle, the organization of a co-operative fire insurance plan for member municipalities, and BE it further resolved, that this resolution be forwarded to all other Districts for their consideration and approval, and request that the Board of Directors of the Ontario Municipal Electric Association set up a Committee to institute the purpose of this Resolution. (Carried).

*From District No. 5*—"THAT the O.M.E.A. consider ways and means of averting strikes in the H.E.P.C. or municipalities such as—waiting periods, arbitration, or by boards, but make it an offence to strike by legislation" (Deleted).

*From O.M.E.A. Board of Directors*—BE IT RESOLVED that the O.M.E.A. approach the Provincial Government and request that legislation be enacted, declaring the supplying of electric power a vital matter to the welfare and security of the Province and to so provide that in all matters of dispute between labor unions and utilities, that the parties concerned be bound by the decisions of an Arbitration Board: (Deleted).

*From Lindsay Hydro-Electric System*—WHEREAS 1. Firemen and policemen are considered as essential public servants, and as such, are prohibited from resorting to strike action by firemen and policemen respectively, and WHEREAS 2. Hydro employees are, in many respects, just as essential as firemen or policemen, and WHEREAS 3. The threat of Hydro interruption as a result of a strike is too powerful a weapon to be placed at the disposal of any group bargaining for personal gain, RESOLVED that the O.M.E.A. petition the Legislature, at an early date, to consider a Public Utilities Act to outlaw strike

(Continued on page 8)



action by utility employees and to leave all other bargaining rights with compulsory arbitration as the ultimate solution to disputes. (Carried).

*From Districts No. 7 and No. 8—* WHEREAS, in recent years, the Ontario Municipal Board has seen fit to order that various urban municipalities annex lands in adjacent rural municipalities and, as a consequence of such annexation orders the Hydro-electric commissions of such urban municipalities have been required to take over and purchase the plant and installations of The Hydro-Electric Power Commission of Ontario in such annexed areas, AND WHEREAS, certain problems have arisen as to the basis of payment for such annexed plant and the disposition of certain money previously paid by customers in such annexed areas towards sinking fund and other reserves in connection with such plant and installations, AND WHEREAS, it appears likely that such annexation orders will continue and will affect an increasing number of municipalities, BE IT RESOLVED that the matter of policy with respect to the basis upon which urban Hydro commissions shall be required to take over such plant and installations be referred to the Executive Committee of the Ontario Municipal Electric Association or to such committee as it shall see fit to designate for investigation and report. (Carried).

*From District No. 8—* WHEREAS an informal meeting of elected representatives of District No. 8 O.M.E.A. from Sarnia, Wallaceburg, Chatham and Windsor was held in Chatham on Friday, April 17, 1953, and, WHEREAS the commissions represented are in general agreement with the policies and objectives of the Electric Service League of Ontario in the promotion of adequate wiring which would justify Red Seal approval and are presently supporting Red Seal policies in whole or in part, and WHEREAS the Electric Service League has made every reasonable effort to improve the Standards of municipal domestic wiring installations, and WHEREAS there is no comparable effort to improve domestic wiring standards, in rural areas with a resultant large number of houses being constructed in rural areas with inadequate wiring, and WHEREAS the present minimum requirements for domestic service entrances in the Rural Standards of the H.E.P.C. is inadequate, due to the increasing use of high load appliances which create ex-

cessive load demand on the service panel, NOW, THEREFORE BE IT RESOLVED that the Executive of the O.M.E.A. be requested to approach The Hydro-Electric Power Commission and to suggest that Red Seal Adequate Wiring specifications, particularly with reference to entrance panels, be incorporated as a minimum standard in the wiring code covering rural domestic construction. (Carried).

*From A.M.E.U. Executive Committee—* THAT the Executive Committee of the A.M.E.U. suggest to the O.M.E.A. that the Ontario Hydro establish a study Committee to meet with Mr. A. R. Crozier, the Fuel Controller of the Province with respect to the conditional selling assistance granted to the gas companies and that the Ontario Hydro form a Committee and that this Committee have representation of the managers (or alternates) of the Sarnia Hydro, Windsor Utilities, Chatham Hydro and London Utilities, along with representatives of The Hydro-Electric Power Commission of Ontario. (Defeated).

*From A.M.E.U. Executive Committee—* WHEREAS Hydro 1,500-hour lamps were made available by The Hydro-Electric Power Commission at the request of the Canadian Standards Association AND WHEREAS Hydro lamps have set the standard for long life in the lamp industry, AND WHEREAS a report of the Research Division of The Hydro-Electric Power Commission dated August 28, 1953, states that over 30 years ago a 1,500-hour lamp was designed for Hydro lamps as most suitable for conditions in Ontario, it would approve that under present conditions the 1,500-hour life for incandescent lamps is still to be preferred, AND WHEREAS the majority of Hydro municipalities recently indicated, in a survey, their desire to continue to be able to obtain Hydro lamps in order that these may be used for street lighting and for resale to their customers, even if it is necessary to increase the price of these lamps, AND WHEREAS there is a trend among the manufacturers to make available only 750-hour lamps AND WHEREAS the Hydro shops in the various municipal Hydro systems pledge their continuing support, THEREFORE BE IT RESOLVED that the executive committee of the Association of Municipal Electric Utilities, on the advice of the merchandising committee, recommend to the Board of Directors of the Ontario Municipal Electric Association that The Hydro-Electric Power Com-

mission of Ontario be petitioned to continue to make available Hydro long-life lamps. (Carried).

WHEREAS the accounting department of The Hydro-Electric Power Commission spends many hours in arriving at the annual debit or credit balance due municipalities on cost accounts such as street lighting, water works, etc., AND WHEREAS it appears impossible to give proper weight to the factors involved in the computation, AND WHEREAS this method increases the difficulty of accuracy in budgeting both on the part of the municipality and the local commission, THEREFORE, BE IT RESOLVED that we petition The Hydro-Electric Power Commission to seek legislation which will permit local commissions to establish equitable rates for this type of service. (Carried).

*From District No. 8—* WHEREAS in small municipalities, the members of the Public Utilities Commission are paid a very small annual fee, AND WHEREAS most commissioners are employed in occupations under weekly wages, AND WHEREAS if said commissioners wish to attend any functions concerning business which is of vital interest in properly performing the duties of their office, they are forced to forfeit pay for time lost for attending such meetings, AND WHEREAS the Ontario H.E.P.C. will not permit the Public Utility Commissioners to submit a statement for loss of time, THEREFORE BE IT RESOLVED that when commissioners attend any meetings or functions concerning business pertaining to their office that they may be paid a set daily fee as determined at the O.M.E.A. and A.M.E.U. District No. 7 and No 8 meeting to be held on January 29th, 1954. (Carried).

*From District No. 5—* "THAT the question of consumer deposits be brought to the attention of the Ontario Hydro at the next meeting of the Officers of the O.M.E.A. and the Ontario Hydro with a view to obtaining legislation to attain some degree of uniformity." (Declared not applicable).

*From District No. 6 Executive Meeting—* "THAT District No. 6 suggests that part of the fund for stabilization of the wholesale cost of power at \$39.00 per horsepower be used as a reserve for the purpose of reducing the fire insurance rate, and this resolution be forwarded to the Secretary of the O.M.E.A." (Not applicable).

*From O.M.E.A. Board of Directors—* "THAT the O.M.E.A. approach the O

(Continued on page 20)





LT.-COL. A. A. KENNEDY

# URGES CLOSER RELATIONSHIPS

## O.M.E.A. President Pays Tribute to Memory of Loftus H. Reid in Annual Review of Activities During Past Year

**F**OR the second year in succession, the inaugural address of the President of the Ontario Municipal Electric Association at the joint O.M.E.A.-A.M.E.U. convention has included a tribute to his predecessor who died while holding the office.

At this year's convention Lt. Col. A. A. Kennedy, in his review of O.M.E.A. activities for 1953, paid tribute to the memory of the late Loftus H. Reid, who died on April 21 last year, shortly after his election as President of the Association.

"It is just a year," said Col. Kennedy, "since the late Loftus Reid paid tribute to that fine gentleman, Frank Plant, and now it is my sad duty and privilege to publicly honor his memory. Loftus, as he was known to all his associates, was a man of fine character and great integrity."

His wholehearted support and his many hours of work on behalf of the O.M.E.A. indicated his belief that this Association is a very important part of the whole Hydro organization, the speaker said.

"If, on rare occasions, Loftus' ideas or opinions were contrary to those of the majority, he accepted the situation gracefully and without rancor, and proceeded to carry out its wishes."

The loss of his executive ability, his intelligent approach to problems, and his charming personality is a heavy blow to the Association, and the large number of members who were privileged to know him personally.

At the conclusion of his eulogy, the President asked the delegates to rise and stand in silent tribute.

### Closer Relationships

Continuing, Col. Kennedy said that since his appointment as President last June, he had endeavored to promote closer relationships between District Associations and between these bodies and the parent O.M.E.A. In the late spring, he had met with the presidents and secretaries of the district groups. This meeting was so successful, it was decided to make it an annual affair. A uniform constitution had been adopted by the district associations, with minor

changes to conform with local conditions.

"A second policy," he continued, "was to improve the relationship between the O.M.E.A. and the A.M.E.U., thus strengthening both associations and avoiding duplication of effort."

A step toward accomplishing this has been the holding of joint meetings of the two executive bodies for the discussion of common problems. An outcome of these meetings was the decision to have the A.M.E.U. concentrate the bulk of its technical sessions in an annual early summer meeting, leaving the annual meeting purely for business, thus permitting joint sessions for the discussion of subjects of interest to both groups at this time.

"This is in the experimental stage, and your executive will welcome comments and criticisms of this move."

### Improve Hydro Relations

A third policy, said the President, was to maintain and improve relations between the O.M.E.A. and all levels of management of Ontario Hydro. He felt that both groups fill an important role in the broad Hydro picture, and "if we who represent the contributing municipalities, who are the real owners of Hydro, allow suspicion and mistrust to enter our dealings, it is a sorry thing indeed."

With this in view, Col. Kennedy told the convention, an informal meeting of the O.M.E.A. directors, Hydro Chairman Robert H. Saunders, and various Ontario Hydro officials was held in the fall of 1953. A brief was presented to Chairman Saunders, and each subject was discussed frankly, and, where possible, definite answers were given. The President felt that in the future such meetings should be held regularly.

Paying tribute to the O.M.E.A. executive for its fine spirit of co-operation and unselfishness, Col. Kennedy made special mention of Secretary-Treasurer Cliff, praising his loyal support, knowledge and guidance, plus an enormous amount of hard work, that proved him the ideal man for the job. Col. Kennedy spoke, too, of the great assistance and encouragement he had received from Hydro's 2nd Vice-Chairman, W. Ross Strike, Q.C.

"In conclusion," he said, "may I thank one and all for the loyal and hearty support given your executive during the past year. It is my hope, and I am sure that it is yours, also, that when this convention ends, we will truthfully be able to say to ourselves: 'This was a good convention'."—by Horace Brown.



# 873 YEARS' SERVICE

## O.M.E.A. Presents Scrolls to Veteran Municipal Hydro Commissioners

THIS year's joint annual O.M.E.A.-A.M.E.U. convention marked a new milestone as the Ontario Municipal Electric Association inaugurated the custom of presenting long-service awards to members of the Association "in grateful recognition" of their "contribution to the progress of the municipal Hydro systems."

Framed scrolls lauding their "loyalty to the ideals of our province-wide, publicly-owned hydro-electric system," were presented to 30 veteran municipal Hydro commissioners, whose combined service to this great enterprise totalled 873 years.

Accorded a place of honor at the main convention banquet, the long-service commissioners were given a rousing ovation by the large assembly of delegates as they entered the banquet hall led by a kilted piper.

Presenting the scrolls individually, W. Ross Strike, Q.C., Ontario Hydro's Second Vice-Chairman and a Past President of the O.M.E.A., eulogized their unswerving devotion to the ideals of Detweiler, Snider and Beck in helping to place Hydro in its present foremost position by their devoted service to their communities as members of public utilities or municipal Hydro commissions.

Senior commissioner honored was Dr. A. A. Metcalfe, of Almonte, who has been identified with electrical operations in that municipality for the past 49 years.

Like Dr. Metcalfe, Almonte is also a pioneer in the hydro-electric field, being one of the first Ontario municipalities to vote in favor of a publicly-owned distribution system.

A posthumous award was presented in recognition of the outstanding services of the late Dr. William Gallow, who was prominently associated with electrical development at Goderich for some 40 years. The scroll was accepted by R. G. Johnston, brother-in-law of Dr. Gallow and present Chairman of Goderich P.U.C. Dr. Gallow was serving as Chairman of the Goderich Commission when he died on December 22, 1953 at the age of 83. Dr. Gallow had just been re-elected a short time before his death, and despite his age was an active member of the Goderich medical fraternity.

*(Continued on page 12)*



LONG-SERVICE recipients shared special table reserved for them with some lady guests at this year's well-attended joint O.M.E.A.-A.M.E.U. banquet





▲ SENIOR recipient was Dr. A. A. Metcalfe, of Almonte, left, receiving award from W. Ross Strike for 49 years' service.



▲ TWO well-known Hydro figures, George Unger, I., and Roy Pierson, r., Brantford Twp., were honored for 25-year records.



▲ ANOTHER veteran municipal Hydro Commissioner honored by the O.M.E.A. for 26 years' service was D. W. McCormick, Galt, I.



▲ MR. STRIKE, Ontario Hydro's Second Vice-Chairman, presents a framed scroll to Joseph H. Warwick, Oil Springs, I., 28 years.



▲ G. W. GRABB accepted scroll on behalf of C. J. Halliday, Chesley, a 37-year recipient.



▲ W. O. WILSON came from Tilbury to accept the award in recognition of his 29-year record.



▲ PAST President and Secretary, O.M.E.A. Geo. Hutcheson, Huntsville, holds his 25-year scroll.





**DELAWARE** duo, Frank Blodale, 30-year veteran, and F. E. Mahler, r., also with a 30-year record at Delaware, admire scroll.

## 873 YEARS' SERVICE

*(Continued from page 10)*

Alvin C. Clemens, Milverton, 38 years' service; C. J. Halliday, Chesley, 37 years; D. J. McLeod, Embro, 35 years; H. O. Hawke, Galt, 31 years; R. A. Rennie, Port Dalhousie, Frank Blodale and F. E. Mahler, both of Delaware, all with 30 years' service each to their credit, were also among those honored.

Others with a quarter century of service or more as commissioners presented with scrolls were: Albert Rahn, Neustadt, 29 years; C. J. Craven, Dresden, 27; Dr. R. E. Weston, Tillsonburg, 26; Samuel Petrie, Milverton, 27; Roy Pierson and George Unger, Brantford Township, each 25; D. W. McCormick, Galt, 26; Col. James Harris, Kingston, 29; W. O. Wilson, Tilbury, 29; George F. Hutcheson, Huntsville, 25; H. B. Tully, Picton, 26; George E. Findlay, Carleton Place, 25; N. H. Siegel, Stratford, 28; J. H. Warwick, Oil Springs, 28; Dr. R. A. Patterson, Kemptville, 25; Alex Schaeffer, Bolton, 27; David Hurrie, Midland, 25; D. G. Reid, Wardsville, 25; Wakefield Bailey, Kirkfield, 25; F. R. Wells, Marmora, 25; and Gordon S. Matthews, Peterborough, 26.



▲ **C. W. KING, I.**, with Dr. R. E. Weston, Tillsonburg, 26, r., accepted on behalf of Dresden's 27-year veteran, C. J. Craven.



▲ **D. J. McLEOD**, Embro's 35-year representative, l., with N. H. Siegel, Stratford, 28 years, extreme right, and H. O. Hawke, Galt, 31 years, next, smilingly recall vigorous contribution of late Dr. Wm. Gallow, Goderich, whose posthumous award was received by R. G. Johnston, Goderich.



▲ **EASTERN ONTARIO** Hydro veterans, H. B. Tully, Picton, 26 years; Dr. R. A. Patterson, Kemptville, 25; Col. Jas. Harris, Kingston, 29, and George E. Findlay, Carleton Place, 25, examine text of a long-service scroll.



▲ **TWO SCOTS**, R. A. Rennie, Port Dalhousie, 30 years, l., and David Hurrie, Midland, 25, r., were honored with Alex Schaeffer, Bolton, 27.



A WORD of appreciation was extended recently by R. E. Jones, Distribution Engineer, and Chairman of the Committee on Standards for Municipal Distribution and for Periodic Advisory Service, to the heads of the three working sub-committees. Chairmen of these sub-committees are: A. L. Furanna, London, *Distribution Design and Substations*; D. P. Herring, Sarnia, *Underground Design*, and G. L. Lillie, Toronto Hydro, *Standards for Overhead Design and Construction*, including *Street-lighting*.

Addressing delegates at the joint A.M.E.U.-O.M.E.A. convention this year, Mr. Jones said:

"I am sure you will agree with me, that the efforts of these men are deserving of our thanks, particularly since work on these committees is generally an extra load to be carried along with the normal duties of the members, and at a time when everyone seems to be overloaded with other tasks."

Mr. Jones outlined the purpose of the main committee, explaining that the standards were intended to provide a system, structurally sound, and safe to operate and maintain, and not hazardous to the public. The system, he said, should provide adequate security of service and acceptable voltage control. Suitable provision should be made also for growth of load, he added.

Continuing, the speaker stated: "It will also provide for the establishment of an Advisory Service and periodic inspection of municipal properties when requested, by offering accepted standards to which installations would be expected to conform."

#### Will Ensure Uniformity

It will ensure, as far as possible, he said, uniformity in design and construction practices among the various municipalities so that in case of emergency, crews from outside areas can work efficiently and safely. Such uniformity and reduction in the variety of items would, furthermore, tend to promote mass production of material and consequent lowering of costs.

On the individual sub-committees, Mr. Jones reported that the sub-committee on *Standards for Overhead Design and Construction including Street Lighting*, had held 15 meetings and made good

"THE Electric Service League of Ontario had a remarkably successful year during 1953," reported D. P. Herring, Sarnia, who, in the absence of Bertram Merson, Chairman, Toronto Hydro, presented the report at the joint annual O.M.E.A.-A.M.E.U. convention.

Expanding his statement, Mr. Herring announced that 7,123 housing units were certified and the League's Red Seal of approval affixed to the switch boxes, thus assuring the ultimate house-owner that his home was adequately wired. In addition, another 3,045 units, now under construction, will, on completion, be certified, he said.

"Together, these total over 10,000, or about one in every four built," said Mr. Herring. "In the metropolitan area of Toronto, 45 percent of the new homes were certified."

The presence of a local representative in the Sarnia-London area has had encouraging results, revealed Mr. Herring. A total of 267 certificates were issued in Sarnia and 189 in London last year, he revealed. It is expected these figures will be greatly increased during 1954 as in five new subdivisions around London, all the units will be wired to Red Seal standards, he added.

"One of the real steps forward in 1953 with regard to adequate wiring was the acceptance of the Red Seal standard by the Central Housing and Mortgage Corporation," said the speaker.

progress. Some 40 drawings have been prepared, together with much of the text.

"At the summer conference last June, the second draft from this sub-committee was presented and discussed at considerable length. A framed pole was used on the platform to demonstrate certain features of the design covered in the specification." He said the *Distribution Design and Substations* sub-committee had met several times and was making good progress. Mr. Jones explained that, "At the summer conference in 1953, this sub-committee presented a draft on a portion of its work covering substation design. This report

#### Local Co-Operation Necessary

Co-operation of the local Hydro commissioners is very necessary, pointed out Mr. Herring, since the League and the H.E.P.C. and other components of the League can only achieve limited results without municipal assistance.

"The real success of the League's work is based in your office. It is to the local Hydro that the customer looks for leadership. Unless nourished by *you*, the seeds sown by the League's staff will fail to mature. It is *you* who can best tell the story of adequate wiring to your people. *You* can create confidence in the League by displaying its signs and symbols, and by telling the story of adequate wiring to your customers. *You* owe this service to your public; *you* owe it to your system, as anything below adequate, be it service or wiring, is not in keeping with the aims of public ownership."

Speaking of plans for 1954, Mr. Herring said that in conjunction with the Canadian Adequate Wiring Bureau, the League will extend its advertising and promotional features, taking full advantage of newspaper, magazine, radio and television, as well as the various home shows, fairs and exhibitions.

In conclusion, Mr. Herring, on behalf of Mr. Merson, told delegates that the League's offices, Carlton Street, Toronto, would be happy to assist with literature or through its field staff. However, the main strength of the League rested with the local Hydro commissioners, he pointed out.—by H. B. Wood.

is comprehensive and in its final form will furnish a good guide to municipal systems."

Preparation of specifications for the *Underground Design* sub-committee are being carried out by the Engineering Division of Ontario Hydro, where an engineer has been assigned to this project. The sub-committee has set the general plan of specifications and gives final approval on the sections as they are produced. Good progress is now being made. At the summer conference last year, Mr. Herring presented a draft of one section of the specifications.—by H. B. Wood.



# INCREASING DEMANDS

### Association Faces Great Responsibilities Grandfield Tells Convention Delegates

**P**RESENT-DAY trends of "staggering growth in assets and increased demands for power, is equally true in the realm of the member municipalities" as it is in the operations of Ontario Hydro, Norman A. Grandfield, P.Eng., A.M.E.U. President, emphasized at the recent 45th joint annual O.M.E.A.-A.M.E.U. convention held in Toronto.

During his address, Mr. Grandfield, General Manager, Galt Public Utilities Commission and the Association's 33rd President, pointed out "that this trend places increasing demands on our Association and its members in two respects. With the inability to obtain competent additional staff, management is increasingly faced with loading plant expansion planning, design and construction on staffs which were geared originally to operative functions only. The other noticeable change is the trend requiring further co-ordinated efforts by the working committees of the Association.

"Both of these trends make it practically impossible for Association committees to perform at any increased tempo. I believe that we should consider ourselves fortunate that local commissions in the province are far-sighted enough to realize the need for concerted action and are generous enough to allow their engineers to give valuable time to the interests of the group as a whole." Faced with these problems, it is to the credit of A.M.E.U. committee chairmen and members that they have been able to carry out their committee work in the manner they have, he stated.

Paying tribute to representatives of Ontario Hydro, Mr. Grandfield said that "it has been my privilege to meet Chairman Robert H. Saunders on various occasions; I believe he holds the A.M.E.U. in high regard, and has never refused any request made to him by this organization. His associate, Second Vice-Chairman, W. Ross Strike, has been extremely helpful to our executive during the year." He praised the co-operation the A.M.E.U. has received from members of the Ontario Hydro management, including Dr. Richard L. Hearn, A. W. Manby, and E. B. Easson, in its requests for information and technical assistance.



NORMAN A. GRANDFIELD



### Praises Rates Committee

Referring to the work of the A.M.E.U. Rates Committee, Mr. Grandfield reported that "we now have the results of the most carefully studied interpretation of rates that it is possible to adopt with our present rate structure. A great deal of credit must go to J. E. Teckoe, Jr., for his able guidance and handling of a very unwieldy and rarely unanimous (without considerable debate) committee." He also took the opportunity to thank A. W. Murdock, Ontario Hydro Rates Study Engineer, for his "tireless efforts" in this regard.

"Your Rates Committee believes that there is much left to be done on rate structure, taking into view the increasing use of steam kilowatthours and the increasing consumer demand for electric heating, and you can be assured that these matters are receiving continuous serious study," he added.

Speaking of standardization studies by the A.M.E.U. on voltage design, construction and materials, Mr. Grandfield said they are "of inestimable value, but require tedious, painstaking work." He said that "we should learn a lesson from the functioning of the present Rates Committee, and apply its organization to our Standardization Committee. It is recommended that Ontario Hydro designate a Standards Officer, who should have extensive experience in municipal work to act as a liaison man between the committee of the H.E.P.C. to co-ordinate the functions of Standards sub-committees, and be assigned sufficient specialized staff to make the necessary studies. It is also recommended that this committee, now directed by a joint committee of the O.M.E.A., H.E.P.C., and A.M.E.U., be made a Study Committee of the A.M.E.U., reporting its progress from time to time as requested."

Commenting on the untimely passing last year of Loftus H. Reid, Mr. Grandfield said the O.M.E.A. was very fortunate in being able to call upon Lt. Col. A. A. Kennedy to fill the unexpired term. "He has been most friendly and co-operative in dealings we have had with the O.M.E.A."

Mr. Grandfield reported that the A.M.E.U. executive committee approved the award of the President's Citation to John Cook, Windsor Utilities Commission, "for his yeoman service rendered over many years to the Western District Accounting and Office Administration Convention, and to George Phillips, Smiths Falls Hydro-Electric Commission, for his personal efforts in the formation and continuing success of the Eastern Division of the same organization."

He paid tribute to W. R. Mathieson, A.M.E.U. Secretary-Treasurer, "as both a loyal friend and a hard-working employee."

### Upward Trend

It was reported by J. W. Peart, Chairman of the Employees' Relations Committee, that there is "still an upward trend in rates of pay" in Hydro municipalities, according to the most recent survey as of December 1, 1953. Comparing the latest summary with that for the year ending 1950, the average rate of increase has been about 26.4 per cent in the three-year period. This is obtained, said Mr. Peart, by selecting 11 municipalities and viewing the classification of linemen. The maximum increase in a single municipality was 42.7 per cent.

A marked trend is also noticeable toward the 40-hour week, Mr. Peart stated. Of 70 municipalities surveyed recently, he reported, the following schedule of working hours

(Continued on page 16)



E. A. WASHBURN  
Stratford



G. R. DAVIS  
Kingston



J. W. PEART  
St. Thomas





FEATURING the joint convention luncheon, were presentations of A.M.E.U. honorary memberships to two past presidents, A. W. J. Stewart, Toronto, (1929), left, and J. W. Peart, St. Thomas (1931), below, by J. E. Teckoe, Jr., Windsor, (right in both photos). Ross L. Dobbin, Peterborough, (1930) was also a recipient this year, receiving his scroll in absentia.



## INCREASING DEMANDS

(Continued from page 15)

applies: those on the 40-hour week, 28; 42-hour week, six; 44-hour week, 31; and 48-hour week, five. There is, furthermore, an indication of a shorter working week for shift employees.

G. R. Davis, Chairman of the Regulations and Standards Committee, reported that the Executive Committee had recommended to his committee that normal voltage, under normal operating conditions, should be set at 117 volts and the local utilities should endeavor to maintain this voltage within a plus or minus of seven volts.

E. A. Washburn, Chairman of the Accounting and Administration Committee, reporting on the problem of disposing of local utility records, said "it might be desirable to have provision made in the Public Utilities Act which would permit the local commission, on approval of the H.E.P.C. of Ontario, to set up a schedule for the destruction of records." He said that progress had been made by his committee in 1953 on problems affecting office procedure of all municipalities in the A.M.E.U.

Three life memberships in the A.M.E.U. were presented by J. E. Teckoe, Jr., Assistant General Manager, Windsor Utilities Commission, to Asa Stewart, retired Manager of the appliance department, Toronto Hydro; J. W. Peart, P.Eng., General Manager, St. Thomas Public Utilities Commission, and to Ross L. Dobbin, retired General Manager, Peterborough P.U.C. Each of the new life members has given long and continuous service to the A.M.E.U. Mr. Stewart was President of the A.M.E.U. in 1929, Mr. Dobbin in 1930, and Mr. Peart was President in 1931. Mr. Dobbin, President of the Engineering Institute of Canada, this year, was unable to be present to personally receive the scroll from Mr. Teckoe.

Past President Rex Martindale, Sudbury, had the pleasure of presenting Mr. Grandfield, the Association's retiring president, with a silver tray and scroll which, he told Mr. Grandfield, will "tell of your success as a servant of this organization."—by *Denis A. Heeney*.



IN RECOGNITION of his efforts on behalf of the A.M.E.U., retiring President Grandfield was presented with an engraved silver tray illuminated address by Past President Rex Martindale, Sudbury.





W. ROSS STRIKE, Q.C.

# AMONG THOSE PRESENT

## Second Vice-Chairman Reviews Ontario Hydro Power Resources and Prospects At O.M.E.A. Business Session

**A** PREDICTION that Ontario Hydro will be "among those present" when it comes time to use atomic energy for the generation of electric power, highlighted an address delivered by W. Ross Strike, Q.C., the Commission's 2nd Vice-Chairman, at the recent joint O.M.E.A.-A.M.E.U. annual convention.

The room was filled to overflowing, with many delegates standing, as Mr. Strike climaxed the session by answering many important questions affecting Hydro and the municipalities.

### Atomic Energy Studies

Stating that scientists and physicists tell us that to date the world has discovered how to use less than one-half of one percent of the potential energy created by the sun, Mr. Strike said that Ontario Hydro is now associated, along with a few other interested groups, with the Atomic Energy of Canada Limited plant at Chalk River, conducting feasibility studies relative to the development of atomic energy for electric power generation purposes.

"Dr. W. P. Dobson is the liaison man between Ontario Hydro and this group," he told the assembly. "Mr. Harold Smith is the engineer in charge of our group of three Ontario Hydro engineers, now permanently located at Chalk River, and, of course, Dr. Richard L. Hearn is now and has been for two years on the Board of Directors of Atomic Energy of Canada Limited. The Canadian group is working closely with the atomic group in Great Britain, and there is every indication that a closer tie-up with the Americans in this field will be developed at an early date."

The speaker said that those closest to these projects confidently predict that the development will come within five years, and certainly in 10 years. It is being predicted currently that the development will be in the form of thermal energy displacing coal or other fuels. Future discoveries, of course, can always change this type of development, but this does not appear to be very probable, the speaker stated.

"In any event, I think it is plain that

Ontario Hydro is 'on the ball' in this field, and certainly will be among those present, as the techniques in this area are developed, and will be a pioneer in the establishment of a plant, when it is economically possible and feasible."

Referring to the natural gas problem, Mr. Strike said Ontario Hydro's existing fuel-electric stations are adaptable to the use of this fuel. He estimated the cost of changing over the Richard L. Hearn Generating Station, in Toronto, at about \$500,000. The two present plants could possibly use a very substantial amount of gas per year, but it would have to be on "some sort of interruptable basis," and it would certainly have to be at a price comparable to coal, which, at present prices, would be a price of about 32 cents per 1,000 cubic feet for natural gas. Mr. Strike commented that "this price is considerably lower than has been mentioned so far in the discussions about gas."

Expressing his personal opinion Mr. Strike said that "it might be a very good

*(Continued on page 20)*



# CONVENTION CARICATURES

By *W. J. Mac*

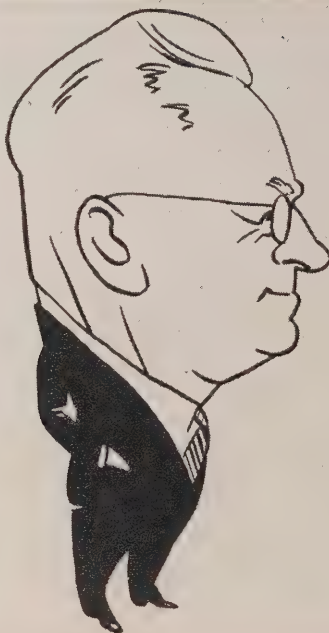
OF THE TORONTO TELEGRAM



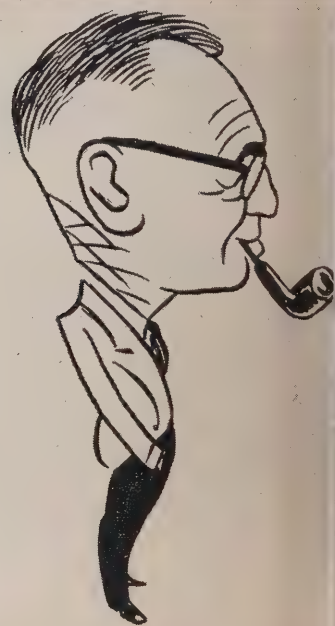
C. A. WALTERS  
Napanea



C. K. MERNE  
New Hamburg

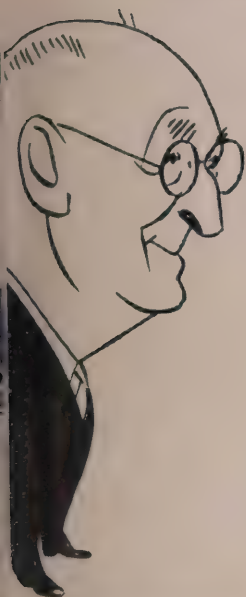


ROBERT D. WATSON  
Holstein



R. G. JOHNSTON  
Goderich





W. E. THOMSON  
Niagara Falls



J. W. PEART  
St. Thomas



C. G. RIDDELL  
Milton



CYRUS FLOMMERFELT  
Chippawa



J. C. CARMICHAEL  
Kemptville



ROSS CARBERT  
Campbellville



DR. R. A. PATTERSON  
Kemptville



J. C. MONTGOMERY  
Cottam



## AMONG THOSE PRESENT

(Continued from page 17)

thing" for Ontario Hydro and the co-operating municipalities to have a separate natural gas organization, either public or private, that would give Hydro some good, keen competition in the utility field.

"It is quite true," he said, "that public utility companies in the United States sell both natural gas and electric energy. However, in most instances, the price of natural gas is lower than the electric rates, and the customers have, for that reason, become heavy users of natural gas. In Ontario, this situation is reversed, in that electric energy will be apparently cheaper for most operations than natural gas, and certainly our customers are equipped to use electric energy."

### Natural Gas Useful

He felt natural gas should, in Ontario, be very useful and popular for heating of homes and water tanks, while it was not in the interests of the overall economy of the province that electric energy be used generally for such purposes. If Ontario Hydro took over the distribution of natural gas in Ontario as a public utility, it would mean the setting up of an entirely new organization in this specialized field. It would mean, also, that the municipalities would have to take on the job of retail distribution, and go into competition with their already very deeply-entrenched electrical operations.

"Another obstacle, of course," said Mr. Strike, "is the financing of such an operation for both Ontario Hydro and the municipalities. We have very extensive financing ahead of us. The money market can absorb only so much annually of any security, no matter how high-grade it is, and the municipalities are about in the same boat by reason of the continued expansion for schools, water-works, sewers, and other public facilities."

This matter, he continued, has not yet been fully explored, nor final arrangements made between the pipe line people, the Federal Government and the various provinces concerned, but he assured delegates that it is being very carefully appraised and considered before a final decision is reached.

### Hydraulic Energy

The speaker traced the manner in which Ontario Hydro had met the demand for more and more electricity, re-

ferring to the Ottawa River as the best example, within the system to date, of the obvious advantage and cheapness of hydraulic energy, where the same water can be used over and over again along the course of the river. He said the pumped storage scheme at the Sir Adam Beck-Niagara G.S. No. 2 Project would not have been constructed at this particular time, if it had been possible to get an earlier start on the St. Lawrence.

"When the Niagara and St. Lawrence developments are completed, hydraulic power will continue to form the backbone of our grid system during the lifetime of most of those present," Mr. Strike stated.

In reference to the role of Hydro's fuel-electric plants, he said: "Very definitely steam plants now have a useful place in our system. In fact, they are a necessity, and have saved us from disaster in the years 1953-54. Once they can be used again for their intended purpose of taking care of peaks and as stand-by, they can be operated economically and certainly will not be a burden financially. During the last six months, of course, they have been used for base load very extensively, and it is, under such circumstances that they are expensive as compared to hydraulic plants."

But even in that comparison, it should be remembered that the output from some hydraulic plants, due to low water, is fairly expensive, when measured in relation to the cost of the full capacity of the plant. Thermal plants can, of course, when conditions are favorable, be converted to either gas or oil.

Urging that Canada proceed alone on the St. Lawrence Seaway and Power Development, W. E. Wright, Toronto Twp., presented the report of the O.M.E.A.'s St. Lawrence Seaway and Power Committee, which was adopted by the convention. The committee emphasized O.M.E.A. interest over the years in the St. Lawrence, and said that, while it was most anxious that the developments take place with the "greatest co-operation between our two countries, (Canada and the U.S.A.)," no further delays should be countenanced.

Unless continuous and progressive steps are taken jointly, the report recommended, "This country should explore all other alternatives." It requested Ontario and Canada to investigate the feasibility of constructing the seaway and power projects entirely within the province, mentioning the possibility of utilizing the Rideau Canal system.

A balance of \$460,000 in the Maximum Cost Reserve Fund was indicated by G. F. Hutcheson, Huntsville, in presenting the report of the committee set up to make recommendations in regard to the future of the fund. The report pointed out that, while no municipalities had drawn on the fund in 1952, last year seven municipalities had required some \$7,500 to maintain their power cost at a figure not exceeding \$39.00 per horsepower.

### Suspend Assessments

The Committee recommended that Ontario Hydro be requested to suspend any further assessments on the municipalities for the fund. It further recommended that Ontario Hydro determine a differential over the average cost of power to the municipalities in the province each year to establish a maximum cost which could be met from the interest accruing to the Maximum Cost Reserve Fund; that the present Maximum Cost Reserve Fund be not depleted for other purposes within the next three years, and that the whole matter be then further explored, as by that time Hydro costs and matters pertaining to them, may have become stabilized; and that a committee of the O.M.E.A. be set up to report upon the matter at each convention for the next three years. The report was adopted.

—by Horace Brown

## LIVELY DEBATES

(Continued from page 8)

tario Government to obtain legislation have Unions made a legal entity." (Carried).

### Resolutions of Appreciation

BE IT RESOLVED that this Association go on record as expressing our appreciation to the Public Relations and Information Departments of Hydro for their co-operation and assistance with the convention. (Carried).

RESOLVED that we extend our appreciation to the Editor and Staff of *Ontario Hydro News* whose praiseworthy service has been a great benefit to our Association. (Carried).

RESOLVED THAT this Association go on record as expressing our appreciation to the help and co-operation of the Royal York Hotel, the other Toronto hotels which assisted in accommodating delegates, the press and Entertainment Committee, which have added so greatly to the success of our Convention. (Carried).—by H. B. Wood.



## 118 ENROLLED IN PENSION PLAN

"SOME commissioners are piling up grief for their successors in office by their tardiness in providing some kind of income for their employees at retirement age," stated P. R. Locke, Chairman, Municipal Hydro-Electric Pension and Insurance Committee when he presented the Committee's report at a joint O.M.E.A.-A.M.E.U. afternoon session during this year's annual convention.

Mr. Locke stated that the number of municipalities enrolled in the joint plan now totalled 118, with 19 enrolled in the Supplementary Plan. (Based on the reduced value of the dollar, the Supplementary Plan was introduced in 1951 to provide for the setting up of a minimum pension for those facing early retirements). The total number of employees enrolled is 5,392. Amount of insurance benefit in force is \$21,663,580. At the present time there are 413 persons drawing pension, with the monthly pensions being paid totalling \$20,490.

"Seven new commissions entered the Regular Plan last year, and three of them adopted the Supplementary Plan also," reported the speaker. "Cost quotations in regard to the Regular and Supplementary Plans were submitted to 15 other commissions, whose final decision has not yet been made known to your committee."

In the past year, said Mr. Locke, a new clause has been added to the Pension Plan, known as the "last survivor's annuity option," under which a prospective pensioner can provide for a portion of the pension to pass to a beneficiary after his or her death.

### New Option Proposed

At the present time, another proposed option is being studied, which, if adopted, would permit a prospective pensioner to obtain a larger than normal pension between the ages of 65 and 70, reducing at age 70, when the Old Age Pension becomes available. In this way, a larger level income from age 65 onward can be obtained, explained the speaker.

Continuing, Mr. Locke said: "Your committee is also studying the possibilities of pensions for new employees engaged after they are 46 years old. This latter proposition has many problems which will not be easily solved, but we are hopeful that, in due course, an answer can be found to a question

that is causing considerable concern to a number of commissions."

The speaker offered the services of his committee in providing information to either commissions or employees. In this connection booklets setting out in detail the benefits of the Supplementary Plan were issued to each commission enrolled in the plan.

"Members of the committee are optimistic that good benefits will result from the many visits made by its members to district conventions," said Mr. Locke. "The interest shown will bear fruit in the near future."—by *H. B. Wood.*

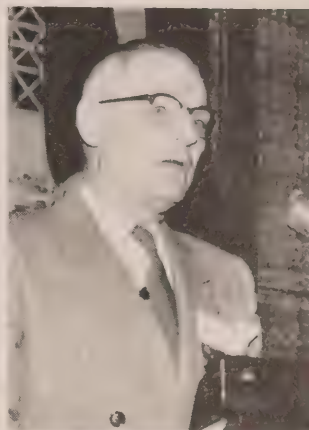
## CANADA AMONG THE FOREMOST

(Continued from page 5)

Explaining the process of extracting energy from atomic nuclei, Dr. Keys said there are several types of devices known as nuclear reactors. They are very complicated devices, fitted with a large number of electronic remote control and indicating instruments for regulating the release of energy and keeping the reactor at a given power output. The fundamental principal underlying their action is the fact that neutrons, which form a constituent of atomic nuclei, uncharged particles having about the same mass as the nucleus or central core of the lightest known atom, that of hydrogen, are able, under certain circumstances, to disintegrate the nuclei of certain heavy atoms. This breaking up of such nuclei as uranium 235, plutonium or uranium 233, is accompanied by the expulsion of two or three neutrons which, under proper arrangement, can be used to fission more nuclei, resulting in a possible multiple chain reaction. The energy is derived from the loss of mass in the fission process, which is converted into kinetic energy of the fragments and the velocity of the remaining neutrons.

While Dr. Keys made no forecast regarding a date when Canada would have its first commercial atomic energy power plant in operation, he said: "We are fortunate in having scientists with the ability and the enthusiasm to carry out its development in which considerable research must yet be done." He highlighted this fact by pointing out that the average age of Canada's atomic scientists is 33 years.—by *Denis A. Heeney.*

## AMONG THE SPEAKERS



P. R. LOCKE  
St Thomas



WILLSON WOODSIDE  
Toronto



DR. FRED BARRON  
Paris



# ELECT 1954 OFFICERS

**LT. COL. A. A. KENNEDY**

**ENDORSED BY O.M.E.A.**

**DELEGATES WITH**

**A. W. H. TABER NAMED**

**A.M.E.U. PRESIDENT**



LT. COL. KENNEDY, of Owen Sound, left, after his election as O.M.E.A. President, stops to congratulate Fort William's popular Manager, "Art" Taber, on his election to A.M.E.U. Presidency.

**L**T. Col. A. A. Kennedy, Owen Sound, was returned to office as President of the Ontario Municipal Electric Association, and A. W. H. Taber, Fort William, was elected President of the Association of Municipal Electrical Utilities at the recent joint O.M.E.A.-A.M.E.U. convention in Toronto.

Lt. Col. Kennedy was appointed in 1953 to complete the term of President Loftus Reid who died on April 21, 1953. Mr. Taber succeeds Norman A. Grandfield, Galt, 1953 President.

Chairman of Owen Sound Public Utilities Commission, and formerly an officer on active duty with the Hastings and Prince Edward Island Regiment during the last war, Lt. Col. Kennedy was elected to the Owen Sound Commission in 1945. He was made Chairman in 1948.

Mr. Taber has been Manager of Fort William Hydro-Electric Commission, since 1944. He joined the Ontario

Hydro staff in 1929, and was for some time Superintendent of Sudbury R.P.D. (now Sudbury Rural Operating Area). In 1940 he was named Manager of North Bay Hydro-Electric Commission, in which capacity he served for four years until his appointment to his present position.

A member of the Association of Professional Engineers of Ontario, Mr. Taber, as well, has undertaken several important community positions. He is a Past President of the Fort William Rotary Club; Immediate Past President, Fort William Red Cross Society; executive member of the local Chamber of Commerce, and a Director on the McKellar Hospital Board.

Ontario Hydro Chairman Robert H. Saunders is Honorary President of the O.M.E.A., while Fred Biette, Chatham; C. J. Halliday, Chesley; G. S. Matthews, Peterborough; K. A. Christie, Toronto;

H. O. Hawke, Galt, and G. F. Hutcheson, Huntsville, are Honorary Vice-Presidents.

Named Vice-Presidents were: E. V. Dyke, Smiths Falls; H. G. Robertson, Barrie; J. D. Phillips, Schreiber; W. E. Wright, Toronto Township; Thomas Barnes, Niagara Falls; A. J. Girdwood, Guelph; H. R. Henderson, Woodstock, and S. G. Thomson, Chatham.

District Directors for 1954 will be J. G. Baldwin, Lindsay; Dr. R. A. Patterson, Kemptville; Lt. Col. A. A. Kennedy, Owen Sound; C. J. Halliday, Chesley; E. R. Freeman, Port Arthur; C. H. Moors, Fort William; Bertram Merson, Toronto; Dr. V. S. Wilson, Etobicoke Township; W. B. Elliott, St. Catharines; William Watterson, Welland; T. J. Moffat, Listowel; H. O. Hawke, Galt; P. R. Locke, St. Thomas; W. B. Curtis, Aylmer; O. R. Burr, Point Edward, and W. P. Bolton, Windsor. D. P. Cliff, Dundas, is Secretary-Treasurer.



H. A. Howard, Thorold, was named Vice-president of the A.M.E.U. Directors-at-large are: Robert Butter, Owen Sound; G. R. Davis, Kingston, and E. A. Washburn, Stratford. Named District Directors were: G. F. Shreve, Oshawa; H. W. Little, Brockville; W. G. Lane, Collingwood; J. A. Williamson, Niagara Falls; B. M. Graham, North Bay; R. B. Chandler, Port Arthur; Samuel Murchie, Brantford Township; C. S. Phelps, Sarnia, and Ronald Harrison, Scarboro. Secretary-Treasurer is W. R. Mathieson, Toronto.

At the meeting of the Executive Committee the following committee appointments were made:

Accident Prevention and Health Promotion Committee, Chairman, Ronald Harrison, Scarboro; Accounting and Office Administration Committee, Chairman, Samuel Murchie, Brantford Township; Vice-Chairman, Jack Cook, Windsor; Vice-Chairman, W. C. Lewis, Ottawa; Convention Committee, Chairman, H. A. Howard, Thorold; Vice-Chairman, Wm. G. Lane, Collingwood; Employee Relations Committee, Chairman, J. W. Peart, St. Thomas; Vice-Chairman, G. F. Shreve, Oshawa; Merchandising Committee, Chairman, O. H. Scott, Belleville; Papers Committee, Chairman, G. R. Davis, Kingston; Rates Committee, Chairman, J. E. Teckoe, Jr., Windsor; Vice-Chairman, Robert Butter, Owen Sound; Regulations and Standards Committee, Chairman, Norman A. Grandfield, Galt, and Vice-Chairman, C. S. Phelps, Sarnia.—*by H. B. Wood.*



RELAXING at a post-convention executive meeting were, left to right, D. P. Cliff, Secretary; O.M.E.A. President Lt. Col. Kennedy, and Harvey Hawke, Galt, seated, and standing, l. to r., District Directors Wm. Watterson, Welland, and T. J. Moffat, Listowel, and Vice-Presidents A. J. Girdwood, Guelph; W. E. Wright, Toronto Township, and Thomas Barnes, Niagara Falls.

FULL-DRESS meeting of 1954 A.M.E.U. Executive, seated, l. to r., G. R. Davis, Kingston; N. A. Grandfield, Galt; Mr. Taber, H. A. Howard, Thorold; E. A. Washburn, Stratford; and Robert Butter, Owen Sound; standing, l. to r., W. R. Mathieson, Toronto; W. G. Lane, Collingwood; B. M. Graham, North Bay; G. F. Shreve, Oshawa; H. B. Little, Brockville; Ronald Harrison, Scarborough Twp., and Samuel Murchie, Brantford Twp., followed conclusion of convention.







D. P. CLIFF

# Continued Progress

**11 More Municipalities Join O.M.E.A. Ranks, Bringing Membership Up to Total Strength of 279**

**M**EMBERSHIP in the Ontario Municipal Electric Association continues to grow, accompanied by a marked interest in the association's activities, Secretary-Treasurer D. P. Cliff reported at the joint annual O.M.E.A.-A.M.E.U. Convention recently. Eleven new members joined the O.M.E.A. during 1953, to bring the total membership to 279.

Paying tribute to the late Loftus H. Reid, who died while serving as President of the Association, Mr. Cliff recalled that from the same platform the late Mr. Reid, in his presidential address a year ago, had said: "We are but 'birds of passage,' and some who foregathered with us yesteryear have gone out to return not again."

"The very suddenness of his passing on April 21, 1953," said Mr. Cliff, "only had the effect of accentuating the profound shock experienced by us all, and nothing is surer than that the full weight of the loss our Association has sustained will be more fully revealed by the passing of the years."

The year 1953 was a busy one for the O.M.E.A., the popular and efficient Secretary-Treasurer reported. There were six meetings of the Board of Directors, and one of the President and Secretaries of the Districts. Pursuant to the death of Mr. Reid, the Board met

on May 27 to appoint a successor in office. Lt.-Col. A. A. Kennedy was the unanimous choice.

## Highest Praise

"President Kennedy is deserving of our highest praise," Mr. Cliff told the convention, "not only for filling a difficult breach, but for his commendable conduct of the office since his appointment."

In addition to four regular meetings of the Board, two special meetings were held. The first special meeting was held with Ontario Hydro on September 1 to discuss mutual problems. The second was also with the Commission on November 10 to receive information and lay plans to handle possible power cuts, when strike action at two Commission generating stations, with a consequent reduction in power output, appeared imminent.

The meeting of District Presidents and Secretaries, held on June 23, was an innovation that proved well worthwhile, and of considerable assistance to the district associations, the Secretary-Treasurer reported. It was particularly helpful in planning district meetings. It was decided to hold these meetings annually, thus maintaining close liaison between the district organizations and the parent body. Mr. Cliff pointed out

that the uniform constitution, now operative in all districts, was but one example of the co-operation existing in the organization as a whole.

## Financial Report

The financial report for 1953 showed a surplus of \$12,174.65 on hand at the end of the year, made up of cash and bonds. Expenditures during the year were in excess of receipts by \$472.49. The only extraordinary expense encountered in 1953 was the payment of \$706.47 for one-half the cost incurred by the A.M.E.U. in the production and distribution of the book on Municipal Standards originating from the Bigwin Conference of 1952. It was felt it would be unfair to expect the A.M.E.U. to assume full responsibility for this expenditure.

"It has been my pleasure," said Mr. Cliff, "in company with your President, to attend all district meetings during the year. The officers and secretaries of the district associations are to be complimented on the excellence of the programs arranged."

Mr. Cliff reported the inauguration of Long-Service Awards, honoring Hydro Commissioners with long-service records in their respective municipalities. He said a survey of the province revealed



17 commissioners with a service of over 20 years each, while 30, with more than 25 years' service, would be honored this year.

"Most cordial relations," he concluded, "exist between our Association and the A.M.E.U., and to their officers and General Secretary we extend thanks, heartfelt and sincere. The Chairman and Commission of the H.E.P.C., together with their staff, have been most helpful, and we would like them to know that their co-operation is greatly appreciated."

#### Resolutions Report

The Secretary-Treasurer reported action taken on resolutions passed at the 1953 annual meeting, as follows:

**No. 1** Resolution requesting legislation to control erection of television aerials. The Provincial Government has enacted the desired legislation.

**No. 2** Resolution asking that Ithener, the birthplace of Hydro, through the efforts of D. B. Detweiler and E. W. B. Snyder, be recognized when naming Hydro projects. The Commission advises that the large transmission station recently built near Ithener has been named the D. B. Detweiler T.S.

**No. 3** Resolution asking for legislation to allow the placing of liens on property for the securing of power

accounts in arrears, and which was referred back to the Board of Directors. A committee of the Board was appointed to study the matter and report. The subject will be reintroduced.

**No. 4** Resolution requesting special rates for ball parks, skating rinks, etc. The Rates Committee looked with favor on the request and a more equitable arrangement for costing power to those customers is now included in the new Standard Interpretation of Rates.

**No. 5** Resolution requesting the Commission to continue to charge the cost of frequency standardization on the whole of the Southern Ontario System as originally intended, and not as is now indicated on the Niagara division above. The Commission contends there was no recommendation in the Clarkson Gordon Report that the charge for frequency standardization would be continuous against the 60-cycle areas. The statement was made that the 60-cycle areas would share the cost only until 1951. If the Association makes overtures to the Commission respecting changes, consideration will be given.

**No. 6** Resolution requesting the Commission establish a more equitable basis for costing power to municipalities. The Commission replied that it is constantly studying the question and the

Association will be informed if a more equitable basis can be found.

**No. 7** Resolution requesting the Board to compare H.E.P.C. power production costs with those of similar utilities. A special committee was appointed for the purpose.

**No. 8** Resolution requesting the Dominion Government to declare tax free, transformers of a capacity 2,200 volts to 440 volts, the same as is enjoyed by private industry. It is the ruling of the Minister of Revenue that transformers used by industry are used directly as equipment for the production of taxable goods for sale and, therefore, not subject to the tax. The matter would be considered further when the sales tax structure comes up for review.

**No. 9** Resolution requesting the Commission to change their proclaimed policy, and allow municipalities a larger margin than 5% of revenue over ordinary operating costs. The Commission replied that it was sympathetic to the proposal and will bear the contents of the resolution in mind when considering future applications for rate revisions.

**No. 10** Resolution requesting the Provincial Government to enact legislation that would require electricians of the province to be licensed. No action has been taken by the Government.—By *Horace Brown*.

#### DELEGATES MANIFESTED KEEN INTEREST IN CONVENTION DISCUSSIONS







ALMOST 500 MEMBERS AND GUESTS ATTENDED THIS YEAR'S BANQUET

# SYSTEM BUILDERS

**Fine record of Toronto Hydro  
Quarter Century Club members  
commended at annual banquet**

**F**OR the 26th consecutive year retired staff members and long-service employees of the Toronto Hydro-Electric System recently held their annual Quarter Century Club banquet.

The largest banquet room in the Royal York hotel was taken over by the 485 members and guests who watched as 27 new members were presented with 25-year pins, while 13 veteran employees were awarded 40-year pins.

President S. L. Peer, during his welcoming remarks to the members, struck a common chord when he remarked, "We regard ourselves as one big happy family, bent on enjoying ourselves to the limit of our capabilities."

The 111 retired members present came in for words of appreciation from the President, who said that the present employees were the benefactors of their experience.

A silent prayer was offered in memory

of those who had passed on during the preceding year. "Heading the list is a man—Loftus H. Reid—who though not a member, attended many of the banquets and through his good fellowship and genial personality won his way into our hearts. It is only natural and fitting that we should pay this small tribute to his memory," said Mr. Peer. The list of deceased members was read by Secretary A. A. Gibbs.

An affectionate greeting was extended to Toronto Hydro Chairman Bertram Merson, who succeeded Mr. Reid.

"You men and women have built up the Toronto system, and we can only say thanks on behalf of the citizens of this city," said Chairman Merson in reply.

The speaker expressed his appreciation to Mayor Allan Lamport for his support during the past year. "Anytime I wanted the Mayor to attend meetings, nothing kept him from being present."





**NEW MEMBERS** of Toronto Hydro Quarter Century Club, including, front row, l. to r., Edward J. Venum, James V. Salmon, W. T. Daniel, John Pollard; Seated, l. to r., second row, John McMechan, Toronto Hydro's Vice-Chairman, who presented pins; John Christie, Mrs. M. P. Mason, S. J. Husselbee, Miss Rose Oliver, Ronald Morris, Thomas Gazey, and J. E. Reesor; Standing, l. to r., G. W. H. Bolton, H. A. Carter, Arthur Stubbs, D. J. McKenzie, G. E. Exley, C. B. Sturup, L. W. Swann, J. E. Williams, Edmond Tardiff, Ivor Ellis, and W. G. McClelland, obligingly posed for this group photograph prior to the annual banquet.



**RECEIVING 40-year pins** were, seated, l. to r., Jack Nixon, William Tippin, Herbert Russell, and H. A. Swift; Back row, l. to r., Thomas Holliday, James Ford, Thomas Johnstone, Gordon Evans, Edward Marriott, and Frank Bliss. Mr. Holliday was eligible for pin last year but was unable to attend banquet.

It was quite a help to me during my first six months as Chairman."

#### New Commissioner Welcomed

John McMechan, recently appointed Vice-Chairman of the Toronto Electric Commissioners was introduced to the members by Mr. Merson. "He comes to us with a great deal of civic and business experience; I am glad he was chosen to fill the position vacated," said Mr. Merson.

The new Vice-Chairman expressed pleasure at this, his first opportunity to attend a Quarter Century Club banquet. He credited the fine reputation of the Toronto Hydro-Electric System to the loyal work of "the people here tonight and men and women like them throughout the system."

Mayor Lamport, introduced by Chairman Peer, congratulated the 40- and 25-year men and women whose continuity of service and team work was the basis of continual growth. "It is

only because of such service, as is represented here tonight, that we have a great city," stated Mayor Lamport.

General Manager H. J. MacTavish, in his brief remarks, pointed out that the staff increased from approximately 1,100 in 1945 to some 1,800 in 1953. During the coming year an increase of 50 per cent in construction over the previous year was planned, reported the General Manager. Last year, the peak demand on the Toronto System was 488,000 kilowatts, this year it is expected to exceed 500,000 kw., revealed Mr. MacTavish.

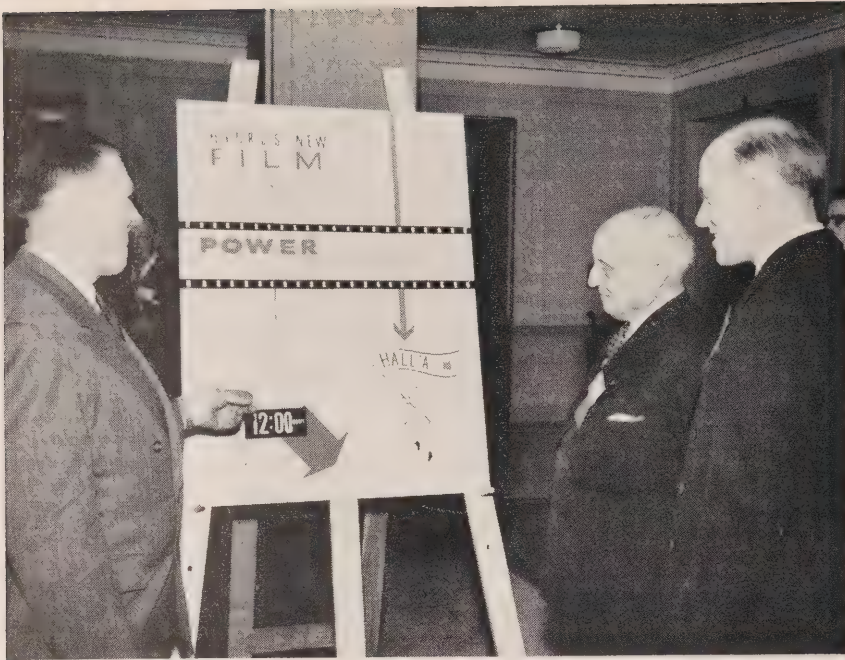
The list of new 25- and 40-year members was read by O. V. Anderson, Past President of the Club. J. S. McGregor, Assistant General Manager, received the new members into the club and introduced them to Mr. McMechan, who presented the pins. At the conclusion of the dinner, the guests enjoyed stage entertainment organized by Leo Simpson, Vice-Chairman of the Club.

#### 40-year Members

Those receiving 40-year pins included: Frank E. Biss, Miss Lillian F. Corley, A. Gordon Evans, H. James Ford, Thomas Johnstone, Thomas B. Kidd, Gerald L. Lillie, Edward F. Marriott, Jack F. J. M. Nixon, Herbert A. Russell, Herbert A. Swift, William Tippin and William C. Ware.

Recipients of 25-year pins were: George W. H. Bolton, H. Alan Carter, J. Wilfred Chafen, John Christie, Melville J. Damp, W. Telfer Daniel, Ivor Ellis, George E. Exley, Thomas H. Gazey, Stanley J. Husselbee, William G. McClelland, D. James McKenzie, Mrs. Marguerite P. Mason, Ronald Morris, Miss Rose V. Oliver, John Pollard, Joseph E. Reesor, James V. Salmon, Arthur Stubbs, Cecil B. Sturup, Laurance W. Swann, Edmond Tardiff, George F. Taylor, Edmund J. Venum, Harry J. Watts, Walter G. Whitehead and Joseph E. Williams.—by H. B. Wood.



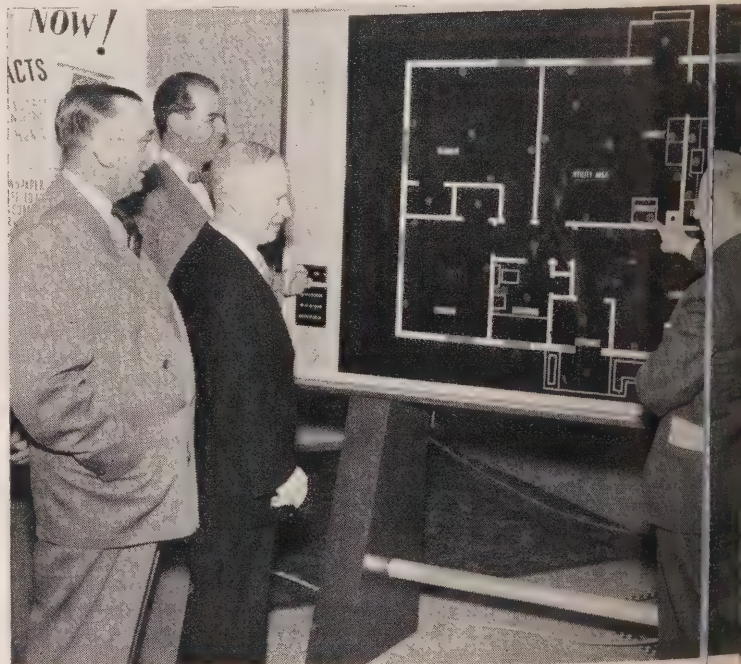


“BETWEEN-SESSION” presentations of Ontario Hydro’s new film, “Power from the Ottawa,” attracted enthusiastic audiences this year. Here, l. to r., O. W. Harris, North Bay; G. F. Shreve, Oshawa, and R. A. Coleman, Port Hope, read announcement of next film showing.



ROYAL YORK Hotel elevators were crowded with delegates between various sessions.

# CONVENTION CANDIDS



“LET’S get out and support the Electric Service League!” delegates, l. to r., T. W. Houtby, Wm. Watterson, both of Welland, R. T. P. Houlihan, Niagara Falls, and F. J. Bradley, Welland, extreme right, agree as they examine an adequate wiring demonstration panel in the League’s display at convention.





J. H. WARWICK, veteran Oil Springs Hydro commissioner, left, poses for Toronto Telegram caricaturist, "Mac," (W. B. MacDonald). Several of "Mac's" caricatures of delegates at recent annual convention appear in this issue.

TO retiring A.M.E.U. President Norman Grandfield, Galt, I., fell the "faith-shattering" task of presenting the annual A.M.E.U. Golf Tournament trophy to none other than O.M.E.A. District Director, Tom Moffat, Listowel.



"I'LL BUY that!" Glencoe delegates, J. A. McCallum and J.R. Quick agree in discussing O.M.E.A. resolutions. Fellow-Glencoeite W. J. Webster, r., is more interested in program.

"NORTHERNERS," l. to r., Dr. M. P. Benger, Norman McLennan, and Samuel Ashton, all of Port Arthur, represented their commission.





# TRIBUTE TO A VETERAN

**I**N recognition of 37 years of faithful and valued service to the citizens of Bowmanville and to the field of electric distribution in Ontario, a host of friends and life-long associates honored George E. Chase at a recent testimonial dinner given by the Bowmanville Public Utilities Commission.

Mr. Chase, who officially retired in January this year, was granted leave of absence in September, 1953, owing to illness.

Born at Brighton, Ontario, he was educated there. Always interested in electricity he joined the staff of the Seymour Power Company at an early age. This firm built many of the generating plants and electrical distribution systems in Central and Eastern Ontario around 1910 when Ontario Hydro was a comparatively small organization.

The assets of this company were acquired by the Ontario Government and turned over to Ontario Hydro in 1916. In that year Mr. Chase became Manager of the Bowmanville utility, and for a lengthy period he also supervised electrical distribution in the rural areas around Bowmanville, Newcastle, and Orono.

A noted musician and sportsman, Mr. Chase gave unstinted service in many community and civic projects, while playing an outstanding role in the activities of several province-wide electrical organizations. In 1939 he was President of the A.M.E.U., having served as a Director on several occasions. A member of the Association of Professional Engineers of Ontario, he also has been a Director of the Electric Service League of Ontario.

Ontario Hydro's Second Vice-Chairman W. Ross Strike, Chairman of Bowmanville Commission, presided at the dinner in Mr. Chase's honor, during which he was presented with a chair and scroll signed by the guests by M. J. Elliott, Bowmanville Commissioner. Mrs. Chase, although not present at the dinner, was the recipient of a walnut coffee table.

Appreciation of Mr. Chase's service to



**CHARLES A. Walters, veteran Manager of Napanee P.U.C., r., congratulates Mr. Chase, a long-time associate in the electrical field, who was presented with an easy chair by the Bowmanville Commission. Both men were associated with Seymour Power Co. before joining Hydro.**

the community was expressed by Mayor Morley Vanstone and Commissioner Elliott. Brief tributes to his contribution to the electrical field were voiced by E. V. Dyke, Smiths Falls, President of the E.O.M.E.A.; R. H. Martindale, of Sudbury, and E. G. McCracken, of Toronto. A message from another long-time associate, George Leacock, Toronto, expressed his regret that he was unable to be present.

Among the guests were Reeve Sidney Little and former Bowmanville Mayor Lawrence Mason. Replying to the tributes paid to him, Mr. Chase expressed his pleasure in seeing among the guests such notable Hydro figures as Charles Walters, Napanee; O. H. Scott, Belleville; H. S. Britton, Newcastle; George

Shreve, Oshawa; Jack Burns, Markham; F. G. Adsett, P. T. Siebert, and R. L. Brown, all of Belleville; R. S. Reynolds, Chatham; W. R. Catton, Brantford; and N. J. Douglas, Smiths Falls.

The Bowmanville Quartette provided several enjoyable musical selections in the barber shop tradition.

Mr. Chase's retirement has been marked by several tributes.

An indication of the esteem in which he was held by the community he served so long is contained in the following recent editorial tribute from George W. James, veteran publisher of Bowmanville's distinguished weekly newspaper *The Canadian Statesman*:

"We cannot let the resignation of George E. Chase as manager for 37 years, of the





GUEST of honor, Mr. Chase, second from right, poses with members of Bowmanville P.U.C., including l. to r., Manager G. T. VanBridger,

Mayor Morley Vanstone, Chairman W. Ross Strike, 2nd Vice-Chairman, Ontario Hydro, and M. J. Elliot, which tendered complimentary dinner.

Bowmanville Public Utility Commission pass without giving public utterance to a well deserved tribute. In making this goodwill gesture we feel citizens generally will join with us in any expressions of appreciation that are made on this occasion.

"In the first place 37 years establishes a all-time record of public service for this community. That covers a span of well over three generations. Anyone who has been elected or appointed to any public office or position, be it mayor of a municipality or fence-viewer, knows all well how one is exposed to the whims, fancy, criticism or praise of a demanding public whose human characteristics seem lack appreciation of services rendered. A person in private business, by comparison, lives in clover, so to speak.

"The writer of this tribute having lived in Bowmanville all these years knows hereof he speaks having occupied public offices at various times, as well as being in private business of a semi-public nature in the community, for nigh on to half a century. During these years we have been closely associated in many capacities with Mr. Chase, in which we have agreed and disagreed with him in many local projects under consideration. However, I always found him a fair opponent, as well as a loyal supporter. Through such experiences and associations a friendship has been created that is a prized possession in memory's storehouse as we approach the modern era of Old Age Pension.

"In reviewing Mr. Chase's career since he came to Bowmanville in 1917 there are two stories to tell. One is his intimate association with his position as manager of what was first known as "The Hydro

Shop," which later grew to the Public Utilities Commission and now embraces Hydro, waterworks and sewerage. This, in itself, is a marvelous story of the development and achievement of Hydro power and its many uses in modern life, both industrially and domestic. This is going to require considerable research, but it will be worth the time and effort in order that the present generation may better understand and appreciate what they owe to Hydro power, which is too often just taken for granted—until the power is suddenly shut off and then we realize the many ways we are dependent on the so-called invisible electric juice.

"We will, therefore, write that important part of the story at a later date and confine our comments in this issue to the many willing services Mr. Chase contributed to his newly adopted community outside of the details connected with his immediate position as Hydro Manager.

"It wasn't very long after George arrived in town from his native hamlet of Brighton that it was found he was musical. At that time Bowmanville had a thriving Citizen's Band and he joined the band being a welcome asset as he could play the trombone, euphonium and bass horn. Next musical circles became aware of his vocal abilities and he became a member and baritone soloist in St. Paul's Choir, which association he retained for over 25 years.

"Nearly every year during the winter season some organization or society would put on a musical entertainment of some kind such as an operetta, cantata or musical comedy. Mr. Chase would invariably take a leading part whether it required tenor, baritone or bass soloist.

Some of the performances we recall were "Pinafore," "Mikado," "Queen Esther," "Trial By Jury," and "The Blue Bird," just to name a few.

"In more recent years George conducted the Rotary Club Choir and was also a member of the Rotary Octette.

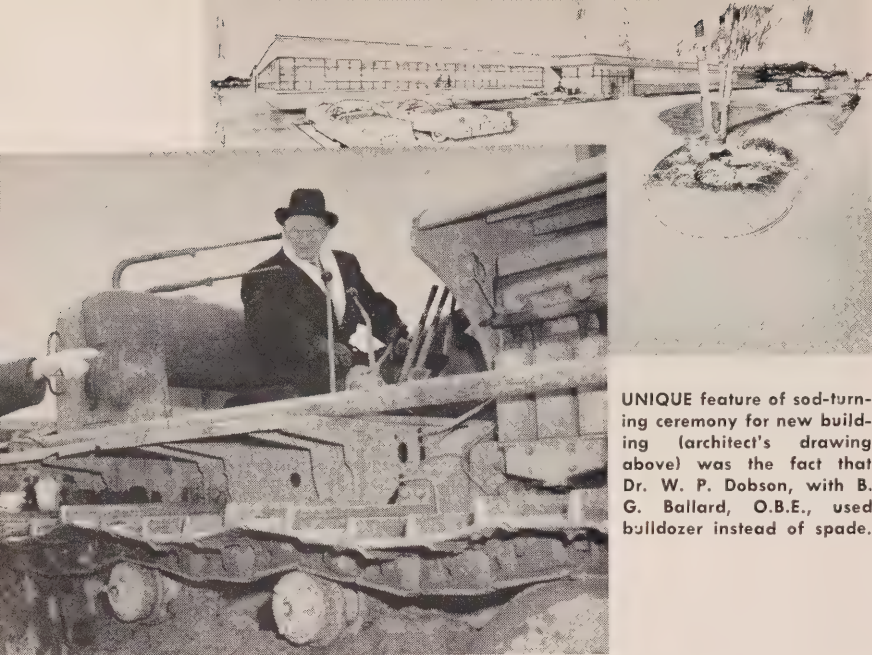
"He was a charter member of the Rotary Club, the first service club to be organized in Bowmanville and was the 3rd President of the Club. For twelve years from 1924 to 1936 he was the indefatigable manager of the annual Rotary Carnivals.

"In fraternal circles he is a Past Noble Grand of Brighton Lodge, I.O.O.F., and a member of United Lodge, A.F. & A.M. No. 29, Brighton. He is also a Past Excellent Master of Palestine Chapter at Bowmanville.

"He has been honored and served in various capacities in electrical associations. He is a member of the Association of Professional Engineers of Ontario; a member of the Engineers Club of Toronto; a member of the Executive of the Red Seal Association (for better wiring as its objective). He is a past president of the Association of Municipal Electrical Utilities and was also a member of the Executive in the same association for 15 years.

"That covers fairly well the "outside" activities in which Mr. Chase contributed no small part to the success of the various organizations mentioned. But this is only part of the story as intimated in the beginning of this article. In a future issue we will cover the story of the 37 years of tremendous progress and growth of Hydro in Bowmanville and district during Mr. Chase's tenure of office as manager of the local Hydro system."





UNIQUE feature of sod-turning ceremony for new building (architect's drawing above) was the fact that Dr. W. P. Dobson, with B. G. Ballard, O.B.E., used bulldozer instead of spade.

## Turn Sod For New C.S.A. Laboratories

WORK on the construction of the new Canadian Standards Association Laboratories to be erected on a 10-acre site on Rexdale Boulevard in the Township of Etobicoke, got under way recently when the first sod was turned by Dr. W. P. Dobson, Research Consultant, Ontario Hydro.

Increased space is required because the number of applications for approval has doubled since the Laboratories acquired its own building in 1950.

The CSA Laboratories are operated as a non-government, non-profit national testing organization to ensure that electrical and oil-burning equipment conforms with the standards and minimum requirements set by the Canadian Standards Association from the standpoint of safety from fire and shock hazards.

The modern Laboratories building, which will cost over \$500,000 and consist of a single-storey laboratory and office building of 50,000 square feet, will provide for future expansion as it seems likely that the Association will be asked to provide a certification service on other products besides electrical equipment and oil burners.

Among those attending the sod-turning ceremony were: Dean R. E. Jamieson, President, Canadian Standards Association; Dr. Otto Holden, Assistant General Manager—Engineering; B. G. Ballard, O.B.E., Chairman, Administrative Board, CSA Laboratories; John Whitelaw, General Manager, Canadian Manufacturers' Association; O. W. Titus, President, Canadian Electrical Manufacturers' Association; W. R. McCaffrey, General Manager, Canadian Standards Association; Gerry Moes, Manager, CSA Laboratories; E. W. McLeod, Chief Electrical Inspector, Ontario Hydro; Edward Horton, Deputy-Reeve, Etobicoke Township; Finley McLachlan and J. C. Van Huyse, Architect, of Finley W. McLachlan Ltd., which have general contract for the new structure.

Dr. Dobson, who has been associated with the Canadian Standards Association since its incorporation in 1919 until the present time, paid special tribute to the representatives of Canadian industry, science and government, who have contributed to the outstanding growth of the association.

## TWO-DAY CONVENTION EXPLAINED

REASONS for changing to a two-day annual convention were presented by G. F. Hutcheson, Huntsville, Inter-Association Committee, at the recent joint O.M.E.A.-A.M.E.U. convention held in Toronto.

Mr. Hutcheson pointed out that the A.M.E.U. holds a summer conference. At this meeting technical papers receive more consideration than they do at the winter meeting. Therefore, it was felt they could be eliminated from the winter convention.

In addition, for the Accounting and Office Administration group of the A.M.E.U., there is now an Eastern Ontario annual meeting in June, and a Western Ontario meeting in September, which are better attended, and of more interest than the winter sessions. Also, the various Metermen's Associations have a regular series of meetings which are more beneficial than any one paper which could be devoted to meters at the winter meeting.

Therefore, it was requested that all municipalities be represented at the convention by the commissioners, managers, or those other members of the staff who advise their commissioners on policy matters, said Mr. Hutcheson.

### Attend Policy Discussion

"The plan now leaves the A.M.E.U. delegates free to attend policy meetings of the O.M.E.A.," pointed out the speaker. "If required, managers can offer guidance to their commissioners during the general discussion."

By limiting the number of delegates attending the winter meeting, it was expected that better accommodation would be available for the official delegates. "For example, all delegates who desired, have been able to secure rooms in the hotel, with not more than two to a room" said Mr. Hutcheson.

"This should mean better hotel service, and more important, allow more time for discussion of matters relative to Hydro in the province and our member municipalities," concluded the speaker.—*by H. B. Wood.*

"Do you feel okay, Joe?"

"Sure."

"Fine. Must have been a bear I shot."





SCARBOROUGH emergency steam station, one of two Hydro package plants now in operation to supplement loss of output at the adjacent Richard L. Hearn Station.

## "Wonderful Co-operation"

Hydro Chairman Praises Assistance of Sister Power Organizations and Heroism of Ontario Hydro Operating Staff After Temporary Shutdown of Richard L. Hearn Generating Station

**W**ONDERFUL co-operation" of American utilities, Quebec suppliers, and Polymer Corporation at Sarnia received the praise of Chairman Robert I. Saunders a few days ago.

Mr. Saunders was commenting on the assistance rendered to the Commission by these power organizations after mechanical failures, followed by fires and reported explosions, caused extensive damage to two generating units at Ontario Hydro's Richard L. Hearn Generating Station in Toronto. The station has been closed down for an indefinite period.

The first failure at 6.14 a.m. on April 1 seriously damaged No. 1 generating unit, the plant being shut down temporarily as a precautionary measure. Units 2 and 4 were returned to service a few hours later. (Unit No. 3 is, at present, being converted from 25- to 60-cycle. When all four units are operating at 60 cycles, the station will have a total capacity of 536,000 horsepower).

On April 5, while technicians were making a detailed examination of the damage to No. 1 unit and workmen were restoring that section of the building, preparatory to the dismantling of the damaged unit for rebuilding, another explosion and fire occurred in the adjacent No. 2 generating unit. Fortunately

any serious damage was confined to the immediate area and the fire did not spread to other parts of the station. Equally fortunate was the fact that, with so many workmen engaged in the vicinity, only two members of the staff required treatment for shock. Mr. Saunders estimated that damages to each unit could be about equal—approximately \$800,000 each—all covered by insurance.

### Heroic Action

The Hydro Chairman praised the "heroic action" of the station's operating staff in taking immediate steps to shut off all operating equipment, and the speedy response and efficient action of the Toronto Fire Department in quelling the fires.

Suspension of generating operations, he stated, was deemed advisable to permit a thorough investigation into the causes of the outbreaks and ascertain the full extent of the damages.

Lauding the benefits derived by interconnections with Detroit Edison Company of Michigan, and the Niagara Mohawk Power Corporation, Mr. Saunders also offered warm praise of the valuable assistance rendered by the Gatineau Power Company, and MacLaren-Quebec Power Company (Quebec) and the steam generating facilities of Polymer Corporation, Sarnia. These firms, he stated, had supplied substantial quantities



BLACKENED WALL, twisted and broken equipment, indicate extent of damage to one of two units at Hearn plant in which serious mechanical failures occurred earlier this month.

of additional power to Ontario Hydro's Southern Ontario system, an important factor in supplementing the temporary loss of all output from the vital Toronto steam plant.

### Emergency Stations

At the same time, Hydro was taking further steps to meet the serious emergency by placing two of its auxiliary fuel-electric stations: Scarborough (adjacent to the Hearn plant), and Hamilton. The Commission is also considering placing a third emergency plant in operation at Thorold in operation, if found necessary at a later date. These emergency plants, were among six auxiliary steam stations placed in service in 1949 and 1950 which played an important part in meeting increasing customer demands while the Commission was completing major generating stations now in operation.

Work is also being pushed ahead rapidly to bring the first of five 100,000-horsepower units at Hydro's Sir Adam Beck-Niagara Generating Station No. 2 project into service during April. The remaining four are scheduled to "go on the line" progressively during the remainder of the present year.





## Club Loses Valued Member

SINCE the recent banquet, mentioned elsewhere in this issue, the Toronto Hydro Quarter Century Club has lost one of its senior members in the person of Edward M. Ashworth, who died suddenly on March 25. Retired as General Manager and Chief Engineer of the Toronto Hydro-Electric System in 1951, after 41 years' service, Mr. Ashworth is shown fourth from left, above, with a group of Toronto Hydro colleagues at this year's banquet, in one of the last photographs taken of the distinguished engineer. The group, left to right, includes: H. B. Little, McDonald White, W. J. Wylie, P. C. Chrysler, Mr. Ashworth, H. P. L. Hillman, A. W. J. Stewart, and Valentine Boyd.

Born at Newmarket, the late Mr. Ashworth became associated with Toronto Hydro in 1910. In 1924 he was named General Manager and Chief Engineer in 1930, filling the dual position until his retirement. Modest and retiring in nature, he was a graduate of the University of Toronto where he won several scholarships. He had published two books under the name of Johnston Abbott.

Recognized as an outstanding engineer and administrator, he was a loyal supporter of Sir Adam Beck in his campaign to promote the growth of Hydro. First Secretary of the O.M.E.A., Mr. Ashworth was honored with the presentation of an engraved silver tray in recognition of his long association at the annual convention in 1952.

A veteran of the Boer War, he was a member of the Granite Club, the Electric Club of Toronto, the Toronto Industrial Commission, and St. Andrew's United Church. He is survived by his wife, a daughter, and one son.

## Classified Ads

### FOR SALE

THE following transformer has become surplus and is offered for sale: 300 kva, Packard Electric Co., 55° C rise, type "ONS", 3 phase, 60 cycle, 4160 volt delta - 600 volt delta; 4 - 2½% H.V.F.C. taps, 2 above and 2 below normal; complete with oil and standard accessories in accordance with C.S.A. specifications C88 - 1947 and H.E.P.C. specification M-111-53. This transformer has never been used. It carries the original manufacturer's guarantee. The wrappings have not been removed from the bushings. It will be delivered f.o.b. within 50 miles of Burlington at the original cost of \$3,418.00, including sales tax and complete with oil in drums. Apply R. M. McKenzie, Manager, Hydro-Electric Commission, 78 Brant St., Burlington, Ontario.

### FOR SALE

CONSTANT Current Lighting Transformers: (1) 25-Cycle, 2300V/6.6 amp. Transformer, Ferranti Type K.D. Serial 105224; (1) 25 K.V.A. 25-Cycle 2300V/6.6 amp. Transformer, C. G. E. Type R.O. Serial 163203. Priced reasonably, as a result of frequency standardization. Apply to: Weston Public Utilities Commission, 131 Main Street North, Weston, Ontario.

### Whitby P.U.C. Staff Gets Five-Day Week

EMPLOYEES of the Whitby Public Utilities Commission have been given a wage boost with a shorter work week.

The local commission offered the employees a packaged deal: a 42-hour week or five-day week, a 10¢-an-hour increase and stand-by pay of \$1 a day for two men from each department, the men designated to be on call Saturdays, Sundays and holidays.

The employees had asked for a 15¢ an-hour increase, a five-day week and \$ a day stand-by pay for two men from each department.

### 1953 Record Year At Peterborough

MORE ELECTRIC and water service were installed by Peterborough Utilities Commission in 1953 than in any year since 1950, it has been reported by General Manager W. Howard Powell.



# ALONG HYDRO LINES



## Hydro Approves Rate Reduction

DOMESTIC and commercial customers of the Frankford Hydro-Electric Commission will benefit from a reduction in their rates recently approved by Ontario Hydro. Chairman of the local commission, H. W. Rose, said that a new rate schedule would come into effect in the next billing period.

## Canadian Firms Get Big Mine Order

CANADIAN manufacturers have been given orders totalling more than \$1,500,000 for electrical equipment which will be used in developing Steep Rock Lake iron property near Atikokan, Ontario, it has been announced by A. J. Cayia, Vice-President and General Manager of Caland Ore Co. Ltd., Inland Steel Company's Canadian mining subsidiary.

In line with Caland's policy of going to Canadian sources for equipment and supplies to the greatest extent possible, the big order will be shared between Canadian General Electric and Canadian Westinghouse companies.

Included is equipment for a substation to stepdown the voltage from the 115,000-volt power line being built by Ontario Hydro from Port Arthur to the mine site. Six giant electric motors of 10,000 horsepower each, and two of 1,000 horsepower each, will be used in helping remove 160,000,000 cubic yards of silt from the bottom of Falls Bay and Steep Rock Lake. This is reported to be the biggest dredging project ever contracted.

## Ottawa Hydro Seeks Sites

SITES for new substations to service the city's rapidly expanding suburban population are being sought by the Ottawa Hydro-Electric Commission. The commission has instructed General Manager and Chief Engineer Fred G. York to prepare a report on new substations which may be required. Stanley Lewis, Ottawa Chairman, reported that the local commission gained 228 new customers last January.

## New Manager At Wallaceburg

JOHN N. TIMBERLAKE has been named Engineer-Manager of the Wallaceburg Public Utilities Commission, to replace A. G. Price who has accepted another position in Montreal.

Mr. Timberlake is a graduate in engineering of McGill University and has had 30 years' experience. He was Manager of Leamington Public Utilities Commission for the past two years.

## Malcolm McMaster Toronto Hydro, Mourned

MALCOLM MacMASTER, 76, an accountant with Toronto Hydro for 37 years until his retirement three years ago, died recently after a long illness. Born in Scotland, he served in World War I with the 48th Highlanders. He first joined the Toronto Electric Company Limited more than 40 years ago.

## COMPLETES 40 YEARS AS WOODBRIDGE SECRETARY

HAVING completed his 40th year with the Woodbridge Hydro-Electric Commission, Ed. W. Brown, at a recent meeting, was again appointed Secretary-Treasurer for 1954. He has held the position since Woodbridge joined the Hydro family in 1914. At the first billing period they had about 25 accounts, with over 600 accounts today.



E. W. Brown

His first duties, and for approximately 12 years, were reading meters, billing, and collecting accounts. In fact he did everything but climb poles. He was "Mr.

Hydro" to everyone. In 1926, Ontario Hydro opened a rural office in the village and took over the reading of meters. This procedure continued until 1952 when again they relieved him of more work by doing the billing. Still "going strong" he has missed very few O.M.E.A.-A.M.F.U. conventions.

Mr. Brown is a native of Chinguacousy Township, Peel County, where his family were pioneers of the district, having emigrated from Yorkshire, England, in 1833. He served his apprenticeship as a printer at the Brampton Times, and came to Woodbridge in 1894. He is now conducting a printing and insurance business in Woodbridge, although 82 years of age. In March of this year he completed 50 years as clerk of the village.

## Waterloo Names New Assistant

IVAN L. BRADLEY has been named new Assistant Superintendent for the Waterloo Public Utilities Commission. His brother, W. L. Bradley, is Assistant City Engineer in Kitchener.

Mr. Bradley's appointment fills the vacancy created by the resignation of V. MacLachlan, who has taken a position with the Windsor Utilities Commission. Prior to his appointment, Mr. Bradley was employed with Canadian Westinghouse in Hamilton, where he worked in the electrical engineering department and helped in the company's guided missile program. He is a graduate of the University of Toronto.

## Good Record in Collections P.U.C. Accounts

UNCOLLECTABLE bills totalling \$145 for 1953 have been written off by St. Thomas Public Utilities Commission. This amount includes \$12.36 for the Hydro department and \$4.09 for the sewer department.

The St. Thomas Commission reported that its peak load in January, 1954, was 17,345 kilowatts compared with 9,923.5 kilowatt peak load for January, 1953.





THREE Ontario Hydro Frequency Standardization Div. representatives, l. to r., A. G. Brenneman, new Hamilton area Project Manager, W. H. Edwards, Operations Manager, and H. H. Leeming, Director, confer on changeover plans with J. W. Hammond, Gen. Mgr., Hamilton Hydro Comm.

## NAME HAMILTON PROJECT MANAGER

**A**LVIN G. BRENNEMAN, P. Eng., has been appointed Project Manager for Ontario Hydro's program of frequency standardization in Hamilton and the surrounding municipalities.

Mr. Brenneman graduated in electrical engineering at the University of Toronto and joined Ontario Hydro's Operating Department in 1931. On active service in England and northwest Europe from 1939 until 1945, he was awarded the M.B.E. and E.D. in recognition of his outstanding military record. He held the rank of Major upon demobilization.

He commanded the No. 1 Corps Signals (Reserve) in Toronto from 1947 to 1949 with the rank of Lieutenant-Colonel, and last year was President of the Canadian Signals Association.

Mr. Brenneman has been with the Frequency Standardization Division since 1949, and as Project Manager of Area "C" he has supervised changeover operations at London and surrounding districts, and of Area "F" at Windsor and a large section of Essex County, where work is scheduled for completion in July.

Until then he will divide his time between Windsor and Hamilton.

Changeover in Hamilton commences in August, and when the program there has been completed around the end of 1957, it is estimated that 62,290 domestic, 7,750 commercial and 1,500 power customers will have had their equipment altered for 60-cycle operation.

### Television Helps Increase Power Demand in Hamilton

**A SHARP INCREASE** in electrical consumption during January this year, was attributed, partly, to the growing use of television sets in Hamilton, it was reported by J. W. Hammond, General Manager, Hydro-Electric System of Hamilton.

Mr. Hammond states there was an increase of more than 2,000,000 kilowatt-hours in January over the same month of a year ago. He also reported that the peak load showed a tremendous increase. The peak in January, 1954, was 209,216.2 kilowatts as compared with 197,965.2 in January, 1953.

## CLOSE TO THE LIMIT

**T**HAT the time has come when utilities and other branches of the electrical industry must realize "our customers cannot continue indefinitely to add appliances to residential wiring systems already close to the elastic limit!" was the warning issued by Carl D. Bremicker at this year's annual O.M.E.A.-A.M.E.U. Convention.

Mr. Bremicker, Vice-President (Sales), Northern States Power Company, Minneapolis, Minn., and utilities representative on the Executive Committee of the U.S. National Adequate Wiring Bureau, prefaced his address with a review of the growth of electrical consumption by domestic customers.

"It is quite safe to predict that in the year 1954, appliances will be in increased supply and that the average annual residential, kilowatt-hour consumption will show another increase this year."

While the utilities can produce the necessary energy to serve new appliances, "how long can the wiring system on the customers' side of the meter take it?" The residential system today is probably serving the lighting needs of the home providing energy for appliances using heating elements, motorized appliances and electronic devices. It was, more than likely, designed for much less.

"How many more current-consuming devices, which we know the customer plans to buy, can his present wiring system serve with safety, convenience and economy?"

### New Contact with Customers

Stressing the importance of each utility introducing an adequate wiring service in its support of provincial and national programs of this nature, Mr. Bremicker said that such a service gives a new, as well as a personal and friendly contact with many domestic customers. Encouraging customers, planning to build or remodel a home, provides an opportunity to discuss "electrical living" with them to explain the importance of a carefully planned adequate wiring system; which such a system provides in terms of safety, economy and convenience; which adequate wiring will supply their electrical needs for many years without additions or alterations.

"It is a service which can be free and cheerfully given because the customer, the utility and the industry profits," the speaker stated.

In answering the question why a utility

(Continued on next page)



ould support an adequate wiring program, Mr. Bremicker gave the following reasons:

1. There is a very definite relationship between the number of appliances used in homes and the adequacy of the wiring system.
2. A certified adequate wiring program offers unusual opportunities in the field of good customer relations.
3. It gives the utility a program through which it can promote greater safety in the home and help to reduce the number of accidents and hazards which are linked with age-old, inadequate wiring systems.
4. A utility will find also that an adequate wiring service program will bring it much closer to architects, building, home-loan agencies, and electrical contractors and wholesalers, thereby promoting good trade relations.
5. The utility should support the promotional program because, at the local level, it is the one branch of the industry that can put years of experience into the kind of promotion which will make promotional advertising pay off at the grass roots.

#### Hydro Linemen Take Special Course

APPROXIMATELY 60 Hydro linemen employed by the municipal systems of Owen Sound, Meaford, Southampton, Port Elgin, and Wiarton, as well as Ontario Hydro's Owen Sound R.O.A., have completed a special six-week transformer industry course held at Owen Sound.

The course is one which has been sponsored by the Canadian Westinghouse Company and consists of six lectures on the basic theories of electricity as applied to transformers, and on the manufacture, installation, protection, different types of connections, and maintenance of transformers.

#### Report Revenue Increase At London

REVENUE increase of 28.4 percent in 1954 has been reported by the Hydro department of the London Public Utilities Commission. This was, in part, attributed to a 22.4 percent increase in Hydro rates which went into effect January 1 of last year.

The annual report to the local commission stated that the number of customers moving to London during 1953 was almost double the number leaving the city.

## LINE SUPERINTENDENT DIES AT NIAGARA

WILLIAM ROBERT THOMAS, 68, retired Niagara Falls line superintendent, died recently at the Greater Niagara General Hospital, following a short illness. Mr. Thomas joined the Niagara Falls Hydro-Electric Commission in 1910, became a line foreman in 1916, and in 1946 was made a line superintendent. He retired in October 1952. He was a member of Clifton Lodge 254 A.F. & A.M., the Scottish Rite, and the



Cataract Lodge, I.O.O.F. Members of the Clifton Lodge held an evening memorial service in his honor on the Sunday previous to his interment in Fairview Cemetery.

For the funeral a guard of honor was formed at the chapel and graveside services made up of representatives of Niagara Falls Hydro Commission, including Stanley Thomson, Thomas Barnes, and J. A. Williamson. Pall bearers were Ross McQuade, James Riddle, C. Kenneth Pearson, Francis Parmer, George Emmerston, and William Clark.

Surviving are his wife, one brother, Ervie, of Niagara Falls, and a sister Gertrude, of London, Ontario.



## APPOINTED POWER AUTHORITY CHAIRMAN

GOVERNOR Thomas Dewey, New York State, announced recently that Robert Moses had been appointed Chairman of the New York State Power Authority. The latter body has been granted a license (now under appeal) by the U.S. Federal Power Commission as United States agency to develop the power phase of the St. Lawrence Seaway and Power Project in conjunction with Ontario Hydro—the Canadian agency. Mr. Moses, right, is shown discussing the project with Ontario Hydro Chairman Robert H. Saunders during a recent conference.





**T**WO Hydro poles, owned and used by St. Catharines Utilities Commission, are believed to be the tallest in the world. Built in 1888 across Lock No. 3 of the old Welland Canal, they stand 150 feet high, with an additional 10 feet embedded in concrete blocks. Regarded as a unique experiment in concrete pole construction when they were erected by the Lincoln Electric Company, the poles have been the object of close scrutiny by Ontario Hydro engineers and other research experts to determine the longevity and durability of these concrete pylons. As a result of their studies, the technique of pole construction has been improved throughout the world.

Originally, Hydro lines were carried at the top of the poles to clear the masts of vessels passing through the Welland Canal. When the latter was rerouted through Port Weller, the lines were lowered and are now carried on two cross-arms. Time has left its mark on the massive structures and demolition appears imminent, with rerouting of lines across the river in prospect. St. Catharines City has made no decision as to their disposal, but the possibility of preserving the poles as "monumental pieces" has been suggested.



ONTARIO HYDRO

# News

MAY, 1954

**Stairway To Power**





# ONTARIO HYDRO

## News

MAY, 1954

Vol. 41

No. 5

Published by

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO  
620 UNIVERSITY AVENUE, TORONTO



### "LUSTY INFANT"

**S**PEAKING at the recent annual O.M.E.A.-A.M.E.U. Convention in Toronto (*Ontario Hydro News*, April, 1954), Hydro Chairman Robert H. Saunders made the rather startling revelation that Ontario citizens, at the end of 1953, owned a total of 396,285 television sets.

This, he said, indicated a TV unit for approximately every 12.3 Ontario residents last year, while only every 14 residents owned an oil burner. The increase in the number of TV units, has, of course, had a profound effect on Ontario Hydro power loads in the past 15 months or more, with the province's 396,285 TV units using the equivalent of the combined December, 1953, peak loads of 15 sizable urban Ontario municipalities. (The rapid increase in the number of television units now in use in Ontario is typical of the increased use of electrical equipment generally—much of which is frequency-sensitive. In the address referred to above, and on several similar occasions, Mr. Saunders has stressed that customers now own an average of four frequency-sensitive electrical units, compared with an average of 2.7 per customer when estimates for the Commission's frequency standardization program were prepared in 1947).

Judging by the remarks of J. D. Campbell, General Manager, Canadian Westinghouse Company's Consumer Products Division, at the annual meeting of the Association of Canadian Advertisers Inc., earlier this month, this trend is likely to continue for some time.

Although Mr. Campbell did not mention Ontario specifically, he told his audience that the Canadian television industry is forecasting sales of some 450,000 new TV receivers this year, which, it is expected, will bring the total number of homes possessing television sets up to 1,040,000, or about 30 percent of the total wired homes in Canada. How many of these new sets will be sold in Ontario is, of course, open to conjecture, but if the number of new television stations scheduled for operation in Ontario this year is any criterion, then Ontario's share will be very substantial, for the availability of TV entertainment in a particular area exerts a strong influence on purchases of TV receivers. The assumption that a large proportion of receivers will be sold in this province this year can also be based on the trends established in 1952 and 1953. For instance, according to Mr. Campbell, Canada had a total of 590,200 TV receivers in use at the end of 1953, of which, as Mr. Saunders stated, 396,285 receivers (or 67.1 percent of the national total), were being operated in Ontario.

Mr. Campbell in his summary, predicted that "this lusty infant of the electronics industry will continue to come up with enough surprises to keep us all wide-awake for a good many years!"



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Authorized as second class mail,  
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#### CONTENTS

From All Accounts	-----	
All's Peaceful at Fighting Island	-----	
Hydro Skyworkers	-----	
Aviation "First"	-----	1
No. 5 Continues to Thrive	-----	1
Scots Wi' Hydro	-----	1
Lucky 13	-----	1
Design Arabesque	-----	1
Another Wonder Altered	-----	2
Announce Changeover Schedule	-----	2
Along Hydro Lines	-----	2

#### COVER SHOTS

**I**NDICATING the impressive proportions of the twin, 5½-mile tunnels at Hydro's Sir Adam Beck-Niagara Generating Station No. 2, our front cover this month shows the recent inspection held for residents of Niagara Falls and Stairford Township of completed No. 1 tunnel and the special stairway of 350 steps descending from the exit portal of the massive 45-foot diameter water passage.

Gift of Queen Juliana of the Netherlands in gratitude for Ottawa's hospitality during World War II, are the tulips shown in this month's back cover photograph beside one of the small inlets along the Canadian Capital's famed Driveway.

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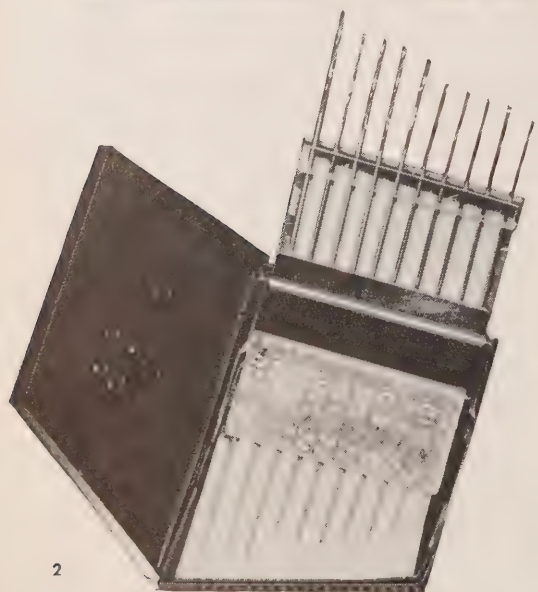


(Photo by Cecil Beaton)

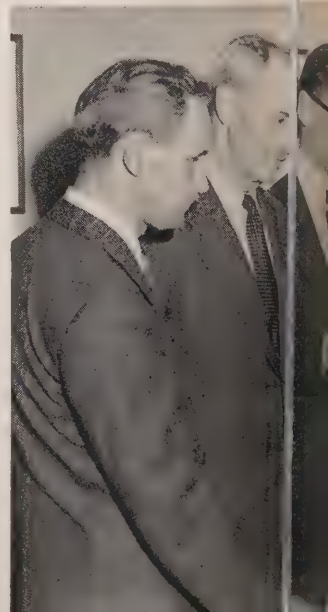
#### H.R.H. THE DUCHESS OF KENT

*CANADA will play host to Her Royal Highness, The Duchess of Kent, in August this year when she comes to Toronto to officially open the Canadian National Exhibition on August 27. Formerly Princess Marina of Greece before her marriage to the Duke of Kent in 1934, the Duchess has graciously consented to officiate at the formal opening of Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2 on August 30.*





ALL ITEMS required for Ontario Hydro's varied operations must be accounted for at Central Stores, A. W. Manby Service Centre, Islington, west of Toronto—from 90-ton transformers (above), which take up a railroad flat car, to drill bits (left), an 80th of an inch in diameter, and thinner than the finest needle. Experts have rated the Commission's new recording and accounting systems at Central Stores as the "most highly-mechanized and up-to-date process in North America."





# "FROM ALL ACCOUNTS"

## Ontario Hydro's Modern Accounting Procedures Saving Many Thousands of Dollars and Countless Man-hours

by Horace Brown

**H**UNDREDS of thousands of dollars and countless man-hours are being saved annually by Ontario Hydro in a continuing re-organization of its accounting procedures, acknowledged to be among the best in North America. Offices have been streamlined for maximum efficiency, the latest in labor and time-saving equipment has been installed, and every attention has been given to employee comfort and convenience.

Always operated on a sound basis, the Commission's accounting system, in the past few years, has had to face the challenge of an unprecedented expansion program, which started in 1945 and has continued unabatedly ever since. This untailored gearing the machinery of accounting to keep pace with this tremendous effort. Hydro accounting, as with every other facet of the province-wide organization, met the challenge admirably.

Despite a natural increase in accounting personnel, the ratio at Hydro to overall payroll is much less than the average in United States industry, where a survey was recently taken. This indicates that Ontario Hydro's accounting staff, by the normal yardstick, is putting forth the highest individual effort possible, in which efficiency and the use of the latest mechanical procedures play paramount roles.

Physically, Hydro's Accounting Division is spread throughout the province. It occupies 36,000 square feet at the Head Office, 620 University Avenue, Toronto, with 356 employees. The Pay Section, located at the A. W. Manby Service Centre, west of Toronto, makes up the cheques for a staff of more than 7,000 scattered over Ontario, exclusive of the 13,000 employees paid through the Regional offices. In addition, there are accounting groups in Regional offices, area and field offices, Central Stores, Central Garage, Production and

Service Shops, and the Frequency Standardization Division. There are approximately 1,200 employees in these outlying offices.

### Saving in Clerical Costs

In streamlining its accounting procedures to make them among the best on the continent, Ontario Hydro found that it actually saved money. The re-organization of the Accounts Payable operations has saved an estimated \$65,000 a year in clerical costs. The new Central Stores methods have saved Hydro, and the people of Ontario, some \$100,000 annually in salaries and wages.

Reduction of costs, of course, meant reduction of personnel for the particular tasks performed before the new methods were introduced. Yet nobody has lost his or her job because of the re-organization of Hydro's accounting methods. All affected personnel either have been absorbed, due to the natural turnover of staff, into other departments of the Com

*(Continued on page 4)*

**F. H. BANKS**, Comptroller, explains visual aid chart used to indicate accounting for Ontario Hydro's sinking fund over a period of 40 years. Left to right: **D. F. MacRae**, Budget Officer; **J. C. Coleman**, Chief Accountant; **G. F. Davis**, Director of accounting; **Mr. Banks**, and **L. S. Locke**, Special Assistant.



**F. P. THOMAS**, Methods Manager, right, demonstrates electrical cheque-writing machine to representatives of the Comptroller's organization. Left to right are: **E. E. Charters**, Accounting Co-ordinator—Regions; **D. F. Orr**, Services Accountant; the late **A. E. Halsey** (see Page 23); **Mr. Davis**, and **Mr. Banks**. Machine processes average of \$30,000,000 monthly.







COMPARATIVE views of a portion of Hydro's Head Office Accounts Payable Section indicate recent changes. Introduction of new procedures, desk arrangement and equipment in 1953 has resulted in streamlining of office above as shown in photo on the left.

mission, or have gone to other jobs of their own free will.

To better handle the manifold aspects of Ontario Hydro's province-wide system of accounting, the Accounting Division was set up in 1953 as a separate entity within the Comptroller's organization. But the work of bringing the Commission's accounting methods up-to-date has been going on quietly and effectively since 1947, when a change in organization resulted in the decentralization of a great deal of accounting to the Commission's nine Regional offices, located in strategic cities and towns throughout Ontario.

So well have the new methods been integrated into the Commission's operations that experts in the field have conceded that Ontario Hydro ranks highly among the businesses of the continent for efficiency combined with economy.

#### Central Stores Methods

At Central Stores, for instance, which is the general supply source for all departments of the Commission, both the recording and accounting systems have been so overhauled that little or no manual effort is required to record movements of material. The new methods have been described by officials of two large business machine firms as the "most highly-mechanized and up-to-date recording and accounting process

on the continent"—the only one of its kind in North America!

Again, there is a punched-card installation at the main office of Canadian Comstock Company (Frequency Standardization Division) in St. Catharines, which Ontario Hydro's Comptroller's staff had a part in designing and installing. (The Canadian Comstock Company is Ontario Hydro's contractor in connection with the impressive frequency standardization program in Southern Ontario's 25-cycle areas.) The punched-card equipment is used for processing inventories of customers' equipment to produce complete records that enable kits of parts to move from the frequency standardization stores at Hydro's A. W. Manby Service Centre, at Islington, to the contractor in the field. This procedure, mathematically-equated, ensures that each kit, bearing the customer's name and address, and cross-indexed with the original inventory of his equipment, arrives precisely at the right time, and in the right place. Setting up this procedure was a tremendous undertaking, underscored when it is remembered that, up to the end of 1953, a total of 1,925,730 pieces of frequency-sensitive equipment had been changed over for 374,205 customers.

Before embarking on this particular venture, Ontario Hydro sought the advice of other utilities, including some in Southern California which had faced

similar problems in recent years. The verdict was "it can't be done." Yet Hydro went ahead and did it!

#### Helps in Setting Rates

Less spectacular, because achieved gradually over a period of years, has been the introduction of a comprehensive system of monthly operating reports, designed to control costs and measure actual results against a budget. In the process, extensive revisions have been made in the arrangement of accounts, easing the job of reporting costs in the field. Along with the budgetary control, forecasts of costs and revenues have been developed, enabling the Commission to better establish wholesale power costs and set rates for rural operations.

After months of intensive study, a streamlined method of costing power was designed, largely by members of the accounting staff, and put into successful operation in 1951. The annual cost adjustment is now completed in eight weeks, a sharp contrast to the time required under the previous method.

Other major problems have been solved by the application of modern accounting principles in the re-arrangement of plant records, and the introduction of intensive costing for control of construction in progress.

Last year, Ontario Hydro went from twice-monthly pay to weekly. In an organization as large as this public utility, where there is an overall payroll





MODERN accounting equipment is operated by these three attractive Hydro employees, left to right, Wanda Staniszewski, Helen Gauthier, and Winnifred McDowell, in the Accounting Department of the Toronto Region, one of nine Commission Regional Offices across the province.

ROBERT DEALL, operator, left, adjusts electric punch-card accounting machine, with taped control automatic carriage, in the tabulating centre at Hydro's Central Stores, Islington, general supply source for all departments, with Supply Control Tabulating Section Supervisor George Burnet, right.

f more than 20,000 and where cheques must be sent all over the province, it was to be expected that temporary dislocation might result, especially when it is understood that pay cheques, in many cases, must be mailed to distant and isolated locations. Yet the transition was made according to plan, and has continued to function smoothly.

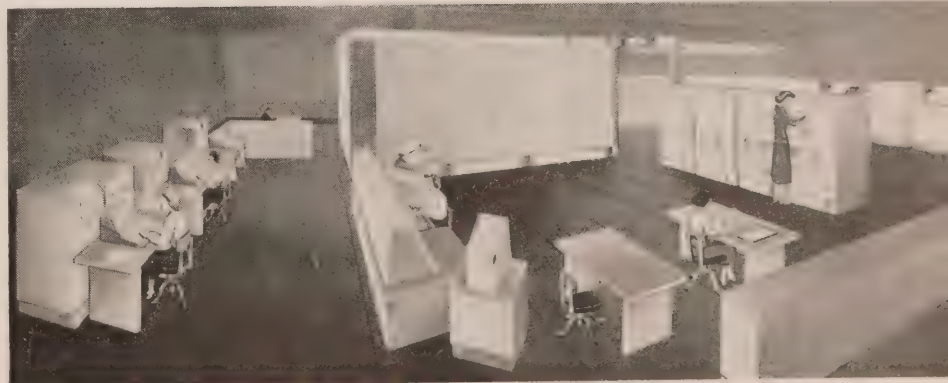
### Complete Overhaul

There was a complete overhaul of the Accounts Payable operations in 1953. This resulted in the speeding up of payment of accounts owed by the Commission. Where it formerly required a month on the average to complete payment of these accounts, today it takes little over a week.

Accompanying the changeover to new methods has been a corresponding physical re-adjustment. The accounting offices have been laid out in such a way as to be conducive to greater efficiency, with all necessary equipment within the employee's reach. It is the "production office" of the manufacturer geared to office requirements.

With all this, the Accounting Division employee's job has become more interesting. While bottlenecks and slow-downs have been eliminated and the motto is "keep it moving," the emphasis is on making the individual job more interesting, even if more specialized.

From all accounts, it's working!



ARTIST'S CONCEPTION OF THE "OFFICE OF THE FUTURE."





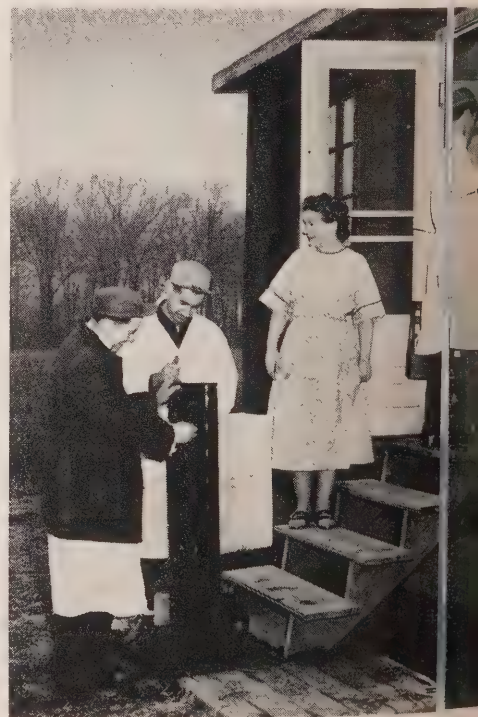
GUIDED by Peter Rene, the island's sole Hydro custom rig skid boat heads for open water of Detroit River, with Hydro technicians, left to right, W. A. Hopkins, Ross McKev, and Roy Smith who carried out unique changeover operation.

# ALL'S PEACEFUL AT Fighting Island

by FRANK C. WOOD

**Ontario Hydro Changeover Technicians Use  
Skid Boats to Reach Lone 25-Cycle Customer**

MRS. RENE welcomes technicians as they arrive at her home with a 60-cycle refrigeration unit.





ONE of the most unusual assignments Ontario Hydro has had to handle in connection with its tremendous frequency standardization program concerns Fighting Island.

Situated on the Canadian side of the Detroit River, seven miles southwest of Windsor, with La Salle the nearest town on the Canadian mainland, the island, forming part of Sandwich West Township, is some three miles long, with an area of 1,500 acres.

Served with power since 1941 from La Salle, part of the Commission's Windsor Operating Area, Fighting Island has only one Hydro customer.

Occupied by a band of Wyandot Indians around 1878, the only inhabitants today are Mr. and Mrs. Peter Rene, who act as caretakers. Mr. and Mrs. Rene apparently have a high appreciation of the advantages of electricity for the inventory of frequency-sensitive equipment in their home included a refrigerator, washing machine, water pump, a line shaft powered by a 1/2 h.p. motor, circular saw, buffer, lathe, bandsaw and a rotary pump.

All this equipment has been operated at 25-cycles for many years and details for changeover purposes were taken in the summer of last year.

None of the hundreds of vehicles of many types which Ontario Hydro normally uses in its frequency standardization program were suitable for making the 500-yard crossing from La Salle.

Two skid boats, loaned to the Commission, were employed to transport the replacement parts and changeover technicians across the Detroit River. Short as this crossing is, it can be very dangerous for inexperienced people, as the ice frequently breaks without warning. The boats were convoyed by Mr. Rene, and a LaSalle resident, Al. Walker.

### Tow Skid Boats

The guides walked in front of the boats, which they towed by means of ropes, jumping into the craft when they reached thin ice.

When open water was encountered, the outboard motors were used and the crossing continued. Constant vigilance against the hazard of floating ice was necessary also. When the ice breaks up in the spring, these crossings usually cease, as floating ice and the swift river current can easily crush and splinter a boat.

But this particular crossing from La Salle to Fighting Island was made with-

out mishap. The replacement parts were then loaded on a trailer and towed to the house by Mr. Rene's tractor.

After the frequency-sensitive appliances in the home had been disconnected, the 25-cycle power was switched off and 60-cycle electricity turned on for the first time. This permitted use of the lights, a stove without timing device, and other non-frequency-sensitive appliances while changeover was underway.

In a few hours Hydro technicians, Roy Smith, Ross McKewan and Walter Hopkins had put a new unit in the refrigerator, and had replaced the 25-cycle motors with their 60-cycle counterparts on the other appliances.

### Extra Test

In view of the fact that it is not too easy for technicians to get to the island to make adjustments, the altered equipment was given an extra rigorous test for operating efficiency at the higher frequency.

Finally satisfied that everything was in order, the technicians replaced their tools, boarded the skid boats and made the return crossing to the mainland, having completed what is regarded as one of the most unusual and probably the most interesting changeover assignment since the frequency standardization program was started over 4 1/2 years ago.

### Illegal Fights

While guide books make no mention of the origin of its name, inquiries among local residents revealed three possible reasons for the appellation: Fighting Island. First was the belief that the island was once the venue of illegal cock-fights. Another local resident claimed that the name was accorded the island by virtue of the bare-fist fights—also outside the law—staged there in the old days. Still another historian asserted that the name is linked with incidents of the War of 1812-14.

But with no immediate neighbors, and only birds for company—pheasants all the year 'round, and ducks which come ashore in the winter—Mr. and Mrs. Rene now, more than ever, regard their home as a peaceful haven.



REPLACEMENT parts for Rene's frequency-sensitive equipment were transferred from skid boat to tractor trailer on island's shore.





# HYDRO "SKY-WORKERS"

By ALLAN A. JONES

Unique aerial lifts



find many uses in

Commission operations



ONTARIO Hydro has found a new and novel use for one of its truck-mounted "sky-workers." The unique aerial lift, which can extend its twin passenger "buckets" up to heights of 40 feet, was used recently to make the 25 to 60-cycle changeover of electric signs in Toronto's downtown Yonge Street area.

The property of Hydro's Forestry Department (part of the Operations Division), it was loaned to the Frequency Standardization Division when it became obvious that alteration of some of the signs would be difficult — if not impossible — using ordinary ladders, or working from window ledges and roofs. Jobs that might have taken days to do by these methods, were completed easily and safely within a matter of hours, thanks to the aerial maneuverability of the "worker."

One of two currently employed by the Commission, the Forestry Department's machine is normally engaged on line-clearance operations, including the cutting of branches and limbs from trees to prevent interference with transmission and distribution lines. For this job, it is



FORESTRY Department's sky-worker, being used temporarily by Hydro's Frequency Standardization Division for changeover of neon signs in Toronto's downtown area (lower photo), has saved considerable time for technicians like Roy Thompson, (left, upper photo), shown directing Forestry operator Charles Painter toward building.





UNIQUE aerial lift has been a boon to construction workers in twin tunnels of Sir Adam Beck-Niagara G.S. No. 2 for inspecting dimensions and concrete lining.

the ideal answer to a specific problem, too. First used last year by Hydro, this novel piece of equipment has proven a valuable aid in speeding up line clearance work, with three men now doing the work of six.

The other "sky-worker" has been doing yeoman service at Hydro's gigantic new Sir Adam Beck G.S. No. 2 project at Niagara Falls. Working in the 5½-mile, twin tunnels which have been built under the city to carry water to the powerhouse, the "worker" has provided a first-class method of checking dimensions and stresses high on the tunnel walls during the early stages of construction, as well as inspecting the concrete lining, and smoothing off any roughness around the "joins" in the lining.

The Commission is experimenting with other possible adaptations for the "sky-worker," and consideration is being given to its utilization for such work as stringing rural distribution lines, and clearing ice from lines following winter storms.



HYDRO'S Forestry Department uses sky-worker extensively for line-clearance, including cutting of branches of trees near power lines. Three men, with aid of the sky-worker, can now do the work of six.



# AVIATION "F"





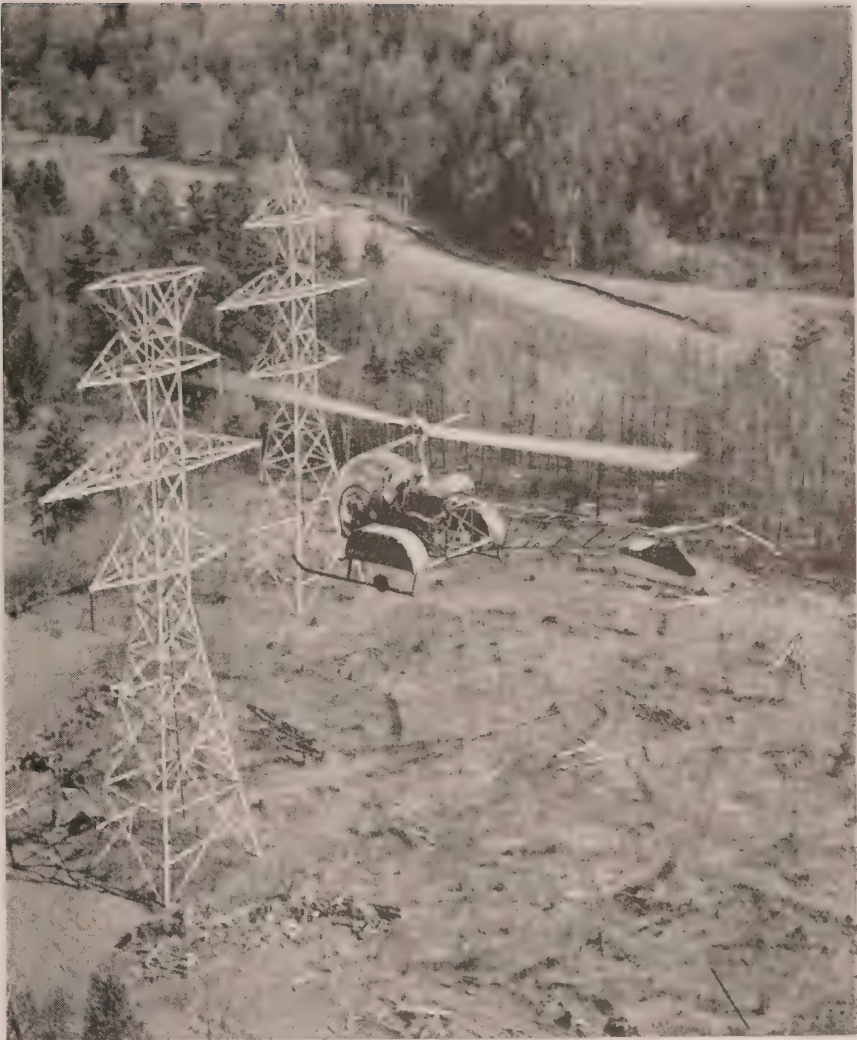
# ST"

## Hydro Helicopter Flown to Lakehead in T.C.A. "Flying Boxcar" to Continue Important Line Patrol Operations

ONTARIO Hydro and Trans-Canada Airlines scored a Canadian aviation "first" early Saturday morning, April 17, when a dismantled Hydro helicopter was flown from Malton to Fort William in a twin-engined Bristol "flying boxcar." The helicopter was despatched to the Lakehead for transmission line patrol replacing a similar aircraft which has been diverted to the English River area on a temporary basis to aid Hydro construction forces on the Manitou Falls power project.

With the spring ice break-up underway, and access to the project, either by foot or by boat, necessarily slowed down, it was deemed advisable to have a helicopter immediately available at Manitou Falls (about 1,000 air miles northwest of Toronto), in case of accident or serious illness among the men engaged on the project, now in its initial stage. Already three injured workmen have been flown out for medical attention.

(One of the major features of construction involved in the completion of the 46,200-horsepower Manitou Falls Generating Station, will be the building



**VERSATILE** Hydro helicopters, in addition to patrolling thousands of miles of transmission line every year, also stand by for forest fire-fighting and other emergencies.

of a 14-mile access road to the site. Work on the new land route, through dense bush and over difficult terrain at some points, is due to start almost immediately, being scheduled for traffic in the early fall).

The decision to transport the helicopter by air freight was reached following a conference of Hydro and T.C.A. officials. Time was of the essence, it being necessary to think in terms of hours rather than days. With Hydro's Lakehead-based helicopter re-routed to the English River, it was important that an immediate replacement be made available to carry out the vital air patrols of transmission lines in northwestern Ontario. Hydro was assured by T.C.A. that the opera-

tion could be achieved by using the mammoth "flying boxcar" to carry the dismantled helicopter. Flying time for the Bristol aircraft, from Malton to Fort William, was estimated at 5½ hours. The helicopter, if flying under its own power and with favorable weather conditions, would require 5½ days. T.C.A. officials reported that the unique project, was the first of its kind in Canadian commercial aviation.

Only one hour and a half was required to "knock down" the helicopter for shipping purposes. Its wheels were removed, the rotor blade and a section of the vertical shaft dismantled, and the assembly placed on wooden skids, ready to be strapped into the air freighter.

CHAIRMAN Robert H. Saunders, watches as dismantled helicopter is loaded aboard T.C.A. Bristol freighter for fast northern trip.



# "NUMBER FIVE"

## Continues To Thrive

Thomas Barnes, Niagara Falls, Named  
President of District O.M.E.A. Group



**M**ORE than 100 delegates and guests, attending the annual meeting of District No. 5 of the Ontario Municipal Electric Association held at the Village Inn, Grimsby, heard W. Ross Strike, Q.C., Second Vice-Chairman of Ontario Hydro, outline proposed amendments to The Power Commission Act. Dr. Fred Barron, Paris, was in the chair for a lively meeting, which saw several important resolutions introduced.

Elected President of District No. 5 for 1954 was Thomas Barnes, Chairman, Niagara Falls Hydro-Electric Commission. He will serve with the following

executive: 1st Vice-President, W. B. Elliott, St. Catharines; 2nd Vice-President, Wm. Watterson, Welland; Directors, Roy Pierson, Brantford Township; C. R. Buss, Thorold; Stanley Thomson, Niagara Falls, and Frank Kaupp, Merritton. Secretary-Treasurer is J. A. Williamson, Niagara Falls.

Mr. Strike again warned his audience that both the Commission and the local utilities operated under very rigid rules laid down in The Power Commission Act and the Public Utilities Act respectively. It was not possible, he said, to conduct the affairs of the Commission

THOMAS BARNES, Niagara Falls, fourth from left, is congratulated by O.M.E.A. President Lt.-Col. A. A. Kennedy, on his election to District 5 Presidency. Group, left to right, F. R. Kaupp, Merritton; Roy Pierson, Brantford Township; W. B. Elliott, St. Catharines; Mr. Barnes, C. R. Buss, Thorold; Col. Kennedy; Dr. Fred Barron, Paris; Stanley Thomson, Niagara Falls (behind Dr. Barron), and William Watterson, Welland, comprises the newly-elected District 5 executive



COMMISSION representatives, left to right, R. H. Hillery, Administrative Assistant—Regions; A. W. Murdock, Rates Study Engineer; W. Ross Strike, Second Vice-Chairman, and M. J. McHenry, Consultant, Consumer Service Division, arrive to attend District 5 meeting.





 RETIRING Secretary George Boucher, Paris, presents his report to the delegates during the well-attended District 5 business session.

or the local utility strictly as private business concerns as they were both public institutions, and, therefore, subject to a number of conditions and policies which did not affect private firms.

#### Proposed Amendments

He also discussed some of the proposed amendments to The Power Commission Act, which were receiving the consideration of the Commission, stating that underground distribution and transmission would become increasingly important and necessary in densely settled areas. He congratulated the districts on the type of program being set up this year and urged all the local commissioners to take an active interest in their district associations.

"They are a very important cog in the hydro wheel, where authentic and informed opinion and policy can be worked out to the advantage of the whole organization," he stated.

A report was given by H. O. Hawke, of Galt, on the possibility of a co-operative fire insurance program, in which all the municipalities of District No. 5 might participate. He stated that District No. 5, through its group public liability insurance, had saved somewhere in the neighborhood of one million dollars in premiums since the plan's inception.

"For every dollar you pay in for fire

insurance," said Mr. Hawke, "you are getting back only 25 cents. There is a possibility of your premiums dropping by half under a co-operative plan."

#### Approve Motion

After considerable favorable discussion, the following motion was carried, moved by George Laughlin, St. Catharines, seconded by W. B. Elliott: "That the Secretary of District No. 5 request each utility in District No. 5 to forward to his office, information respecting the value of plant, the coverage required, the premium now being paid and the losses from 1943 to 1953. That a committee of three members be appointed from the District to consider this information and forward its findings to the O.M.E.A. Special Committee, if and when it is appointed. That this Committee further contact the Gore Mutual Insurance Company, or some similar type of insurance company, and obtain a provisional schedule of rates covering the insurance which this District might require, advise each utility in the District of the rates, and endeavor to set up a workable plan, which could be submitted to this District at its next regular or special meeting."

Anti-strike legislation for public utilities employees was advocated in a motion proposed by Wm. Watterson and seconded by Thomas Barnes: "That the

O.M.E.A. consider ways and means of averting strikes in the H.E.P.C. or municipalities, such as waiting periods, arbitration, or by boards, but make it an offence to strike by legislation." The motion carried, as did another instructing the Secretary to forward the resolution to all other Districts of the O.M.E.A.

#### Reserve Funds

During 1952, not one municipality found it necessary to make use of the reserve funds established to maintain wholesale cost of power to municipalities at a maximum of \$39 a horsepower, D. P. Cliff, of Dundas, Secretary-Treasurer of the parent O.M.E.A., told the assembly, in giving a resume of the work accomplished by this assessment. The reserve fund was established, he said, as a generous effort on the part of the O.M.E.A. to assist "our weaker brothers."

To the end of 1952, the fund had on hand \$372,317.63. While it had been used quite freely in its early days through necessity, the aid given had proven so effective that the municipalities affected soon found themselves without need of assistance, due to increased customer demand for the lower-cost power thus made available. In 1951, only one municipality required assistance, and that for

*(Continued on Page 16)*





COINCIDENT with award of O.M.E.A. long-service scroll to David Hurrie, right, by Second Vice-Chairman W. Ross Strike, Midland, Chairman Charles Stevenson, left, made presentation on behalf of local commission.

# SCOTS WI' HYDRO

## Tributes from Local Citizens Bespeak Esteem for Veteran Municipal Utility Commissioners

(In recognition of the notable record of David Hurrie, who has been associated with the Midland Public Utilities Commission for the past quarter century, Kenneth Somers, of the Midland-Penetang *Free Press Herald*, has contributed a salute to Mr. Hurrie which is reprinted below. Reference is also made on these pages to the honors accorded Robert A. Rennie, a 30-year commissioner, who retired at Port Dalhousie recently. Also included in this article is a brief editorial tribute to the late Dr. William Gallow, who served on Goderich P.U.C. for 40 years. The editorial appeared in the Goderich *Signal-Star* shortly after his death last December. All three men were honored by the O.M.E.A. at the recent convention with the presentation of long-service scrolls, Dr. Gallow's being awarded posthumously. Editor's Note.)

By KENNETH SOMERS

(Midland-Penetang *Free Press Herald*)

March 2, 1954, was a red letter day in the life of Midland's David Hurrie.

On that day, in the banquet room of

Toronto's vast Royal York Hotel, recognition was made of his quarter-century of service in the hydro-electric affairs of both his town and the province of Ontario.

Sometimes 25 years doesn't mean very much, when you say it fast. In Mr. Hurrie's case, it means more than a third of his life spent as a member of Midland Public Utilities Commission.

Born in Kirriemuir, between Dundee and Aberdeen in Scotland, on December 1, 1880, David Hurrie was the eldest of a family that included six boys and five girls. His father was a store-keeper in the little town of about 4,000 population.

All but three of the 11 Hurrie children are still living. Dave has a brother, William, of Mimico, and a sister, Mrs. A. D. Milne, of Schenectady, N.Y., on



this side of the Big Pond. Another brother lives in Mau-Mau torn Kenya; the rest are still in the Old Country.

Dave had to write finis to his schooling at the age of 13, and he found employment in Dundee shipyards as an engine fitter. He was paid four shillings a week for his labors. When his munificent sum had been raised to only nine shillings a week, five years later, Dave decided there were greener fields.

### Became Junior Engineer

In this instance the "greener fields" were the seven seas, and Dave found himself sailing from Cardiff to Singapore as a junior engineer. It was a five-week journey at the dawn of the new century. In the next five years he sailed all over the world on tramp steamers. He missed only one country—Australia—during his travels.

There was another interruption in his career, in 1904. This time it wasn't money—he got married. His bride was Isabella Low, who grew up on the same street with him in Kirriemuir, Scotland.

Marriage made Dave decide it was time for something a bit more settled than tramp steamers. So he took employment with the City Line, which ran a fleet of passenger ships between Glasgow and Calcutta. They were pretty good ships, he maintains. Rated around 15,000 tons, they carried some 300 passengers and made the one-way trip in 23 or 24 days.

Meanwhile, Mrs. Hurrie's health was using the young husband much concern. Finally, upon their doctor's advice, they decided to come to Canada. This was in 1911.

The Hurries' first stop was Toronto, but Dave never worked a day there. An advertisement in a newspaper announced that the Barrie P.U.C. needed a man to run its steam-driven electric plant. Dave applied for and got the job.

The veteran Midland commissioner first winced when he signs the payrolls of present-day employees. His first job at Barrie paid \$75 per month, for a 10-hour day, seven days a week!

At Barrie, Dave was nursemaid to a 50-h.p. steam engine that looked after the heavy night load, and a smaller one that was quite ample at that time to take care of the day-time requirements. His worries with the two engines ended in 1913 when the

H.E.P.C. took over. But Dave stayed on with the Barrie P.U.C. as a member of the line gang.

### Signs as Lineman

It was another veteran Midland commissioner, the late William Dudley, father of George S. Dudley, Q.C., who brought him to Midland. Then Chairman of Midland P.U.C., Mr. Dudley went to Barrie in search of a lineman in 1917. Dave Hurrie turned out to be the man he hired.

Mr. Hurrie worked for the Midland P.U.C. until 1919, when he left to take a job as an electrician at the old Canada Iron Corporation smelter. Unfortunately the smelter "folded up" the following year, but Mr. Hurrie quickly found similar employment at Midland Grain Elevator. He remained there, first under the late James Playfair, and later when it was taken over by Canada Steamship Lines, until his retirement in 1949.

Dave Hurrie started his municipal career by serving for four years, 1923-26, as alderman for Ward 1. He stayed out of the picture for a year but was back in harness again in 1928, his first year on Midland Public Utilities Commission.

From that day to this, Dave Hurrie has been a steady member of the Midland Commission, with the exception of the

year 1940. He suffered his lone reverse at the polls that year, a remarkable record for any public servant over so long a period. During this time he has been named Chairman of the Commission on nine occasions.

In wider fields, Mr. Hurrie also served two years as President of the old Georgian Bay Municipal Association, now District 2 of the Ontario Municipal Electric Association.

For all of his life in Midland, until his wife's death in 1949, Mr. Hurrie's home was at 315 Bay Street W. A few years later he sold the old home and now lives with Mr. and Mrs. Andrew Meikle. But he didn't move far away. Just across the road to 316 Bay.

The Hurries had only one son, David Jr., of Brockville, where he is an employee of General Motors Corporation.

### Only Two Hobbies

As a young lad Dave Hurrie enjoyed quite a bit of local fame as a soccer player in his native Scotland. Now he has only two hobbies—reading and Hydro. He can be aptly described as an "avid devotee" of both of them. He is still a member of Corinthian Lodge, A.F. and A.M., Barrie, and of Knox Presbyterian Church, Midland.

Mr. Hurrie has made only one trip

*(Continued on Page 16)*



**PRESENTATION** of wallet and suitable enclosure highlighted Port Dalhousie P.U.C. testimonial dinner in honor of veteran commissioner, Robert A. Rennie. Group includes, left to right, Frank Naish, Mr. Rennie's son-in-law who succeeded him as a commissioner; Mr. Rennie, P.U.C. Chairman Harry McNulty, who made presentation, and Mayor R. M. Johnston, Port Dalhousie.



## SCOTS WI' HYDRO

(Continued from Page 15)

back to the scenes of his boyhood, in 1935, accompanied by his wife.

After hearing about Mr. Hurrie's visits to many lands during his younger days at sea, this reporter wondered if there was not some place that held a soft spot in the heart of the veteran commissioner.

"Yes, there is," he admitted. "I often said that some day I would like to retire to Spain. It seems a funny idea, for Spain was perhaps one of the poorest countries I ever visited. But I can never forget the wonderful scenery near the blue Mediterranean."

### Colleagues Honor Robert A. Rennie

HELD in similar esteem in his community, is Robert A. Rennie, who retired in December, 1953, from municipal affairs after serving on the Port Dalhousie Public Utilities Commission for 30 years. Like Mr. Hurrie, an ardent Scotsman, Mr. Rennie was also

among the 30 veteran commissioners honored at this year's annual O.M.E.A.-A.M.E.U. Convention. Coincident with his presentation of a long-service scroll from the O.M.E.A., Mr. Rennie was also guest of honor at a testimonial dinner tendered by his Port Dalhousie colleagues.

Held in the local Legion Hall, the dinner was attended by members of all civic bodies and representatives of St. Catharines and other parts of the Niagara District who paid tribute to his long and faithful service. Tangible evidence of this esteem was expressed with the presentation of a wallet and suitable enclosure. Although he had served almost continuously since the Port Dalhousie P.U.C. was formed in 1920, Mr. Rennie had started his service in 1912, when the village council asked him to sit on a committee investigating the possibility of a village water system. The First World War disrupted their plans, and this task was not finished until later. The water committee was then replaced by the elected utilities commission.

## NUMBER FIVE

### Continues to Thrive

(Continued from Page 13)

an amount of \$6.41. By 1952, appeals to the fund for assistance had ceased all together.

The proposed constitution of the O.M.E.A. was brought forward and discussed by the President of the O.M.E.A., Lt.-Col. A. A. Kenedy, of Owen Sound. The constitution was accepted by the meeting.

The complexities of costing power to the municipalities were outlined by M. J. McHenry, Consultant, Consumer Service Division, Ontario Hydro. Under the old method, he said, it took three to four months to determine power cost to the municipalities. With the revised and improved methods, this work now takes less than two months.

### Explains Rates

Dealing with new clauses in the Standard Interpretation of Rates, A. W. Murdock, Ontario Hydro Rates Study Engineer, stressed that community services, such as skating rinks, baseball parks, etc., would have their months of billing reduced from a minimum of six to four, with the billing beginning and ending anytime during a calendar month. He felt that traffic signals were a commercial service, and should, therefore, be billed at the commercial rate.

Speaking of churches, Mr. Murdock said that, for many years, these had been billed at half-rate. The municipalities had been canvassed in this matter, and a majority had favored continuance of the half-rate basis. The speaker explained that social and recreational facilities operated within a church or in a separate building operated by the church, are now entitled to the half-rate.

J. O. Reeve, P.Eng., of the Approval Laboratories of the Canadian Standards Association, presented an interesting paper on grounding.

At the dinner following the annual meeting, delegates heard a talk by R. Cooksley, Ontario Hydro Information Division, illustrated by colored slides, of the Commission's Sir Adam Beck-Niagara Generating Station No. 2 at Queenston.—By Horace Brown.

## HIS SERVICE WAS GREAT

(Tribute to late Dr. Wm. Gallow —  
Goderich Signal-Star, December 31, 1953)

GODERICH has suffered a great loss in the death of Dr. Gallow. For half-a-century he had ministered to his patients as only a medical practitioner can, and for more than half of that period he had given valued service in municipal life, holding every office in the town council, including two years as mayor, then as public utilities commissioner, with many years as chairman of the commission. One of his most useful services to the town was as medical officer of health to which post he gave assiduous attention for a long period until his retirement on account of age. The many other capacities in which he served would make an imposing roll. So quietly, so gently, so modestly, did the Doctor pursue his way that there was no opportunity for his fellow-citizens to realize how great and how wide was the service he was rendering to the community. It is only when his life's work is completed and the account is totalled that we comprehend, and then only imperfectly, how much this town was indebted to him.

The kindly Doctor is gone from the places in which he was known, but he lives in the hearts of the people of Goderich.



# Into the Highways and Byways

**Ontario Hydro Sets Rural Construction Target of 30,202  
New Customers, and 1,326 Miles of Lines for 1954**

KEEPING pace with the growing demand for electricity in the rural areas of the province, Ontario Hydro will add 30,202 customers and build 1,326 miles of rural line during 1954. The budget for this year's rural construction has been increased 15 percent over 1953, for a total of \$23,933,034, due mainly to extensive service improvements. In keeping with its policy of stimulating development of rural Ontario, adopted over 30 years ago, the Ontario Government pays one-half of the initial cost of constructing the new lines in rural areas.

The dependence of rural Ontario on electricity is evident, when it is realized that nearly nine out of ten farms in the province are electrified. Since 1940, Ontario Hydro has more than doubled its miles of rural line, and more than trebled the number of rural customers served. In 1940, Hydro had 151 miles of rural line, and 122,358 rural customers. Five years later, there were 21,569 miles of line and 156,560 customers. By May 1 of this year, Ontario Hydro was serving 369,574 rural customers over 41,686 miles of rural line.

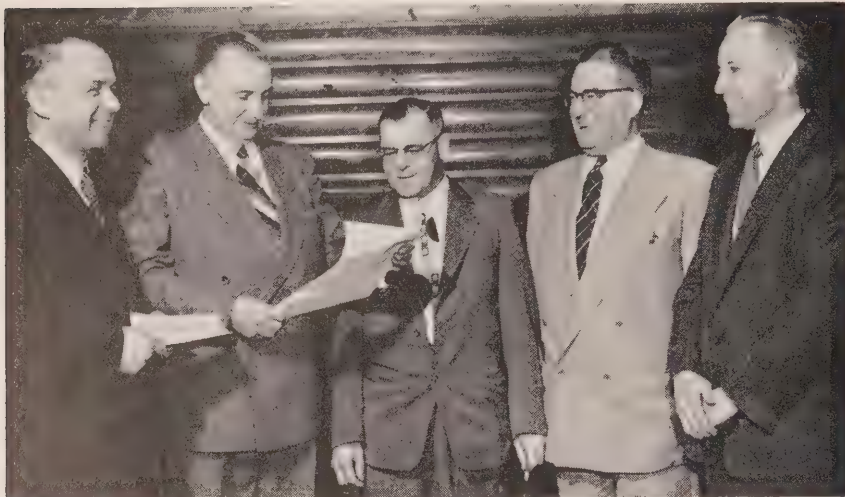


This is a familiar scene in many parts of Ontario today as Hydro expands its rural services.



# LUCKY 13

## West Ferris Township Takes Over Operation of Hydro Distribution System as Fixed-Rate Municipality



HAPPY SMILES of, left to right, H. R. Graham, Manager, Hydro's Northeastern Region; Reeve J. L. Shaw and Councillor Wesley Quirt, West Ferris Township; C. E. Dillon, Manager, North Bay Area, and Councillor H. W. McKercher, West Ferris, mark inauguration of the new system.



ALSO participating in the ceremony were, left to right, E. J. Sims, Hydro Municipal Accountant; Councillors W. J. Forth and B. C. Parker, Clerk Wm. Geden, West Ferris Twp., and A. B. Hayman, Consumer Service Engineer, who attended luncheon tendered by the township.

APRIL 1 was an important date in the history of West Ferris Township, which adjoins the City of North Bay on the city's south-eastern boundaries.

On that day this progressive municipality took over the operation of the township's electrical distribution system from Ontario Hydro, purchasing power from the Commission as a municipal customer on a fixed-rate basis.

Marking the significant occasion Reeve John L. Shaw formally presented the township's initial cheque for \$120,000 to H. R. Graham, Manager of Ontario Hydro's Northeastern Region at a luncheon attended by a group of civic officials and Ontario Hydro representatives. Extending congratulations to the township were Mayor M. E. Dickerson, North Bay; Chairman H. B. McCubbin and Commissioner A. T. Smith of North Bay Hydro-Electric Commission. Reeve Russell L. Morland, Widdifield Township, and W. R. Stewart, former Manager of North Bay Hydro Commission, who has been active in promoting the township's purchase of the township's electrical system. W. A. Barlow, house, and D. Simms, lineman and billing clerk respectively of the new system, were also present.

### 13th Municipality

Ontario Hydro was represented by Mr. Graham, A. B. Hayman, Consumer Service Engineer; E. J. Sims, Municipal Accountant, and C. E. Dillon, North Bay Area Manager, who officially handed over the distribution system to the township. In accepting the cheque from Reeve Shaw, Mr. Graham extended his congratulations, pointing out that the Commission was serving 320 cost-contra municipalities throughout Ontario as well as 12 fixed-rate municipalities. West Ferris has become the 13th fixed-rate Hydro system in the province.

Formal presentation of the cheque represented the township's down-payment on the purchase of the distribution and substation facilities from the Commission, as well as certain betterments and additions being undertaken by Hydro on behalf of the township. Total estimated cost will amount to some \$190,000.

Part of the Commission's North Bay R.O.A. for a number of years, the West Ferris Hydro System includes 17 miles of distribution lines which, at the date of transfer, were serving a total of 1,185 customers, including 880 domestic, 70 commercial, 5 power and 2 summer. Fringing the shores of Lake

(Continued on page 25)





Ontario Hydro's Floral Clock to Feature  
Ancient Islamic Pattern This Summer

# DESIGN ARABESQUE

A DESIGN more than 1,000 years old, will be incorporated in the motif of Hydro's famed Niagara floral clock this summer. Known as arabesque—a term meaning Arabian—it is an intricate geometrical pattern originally used in all Islamic countries to relieve flat surfaces primarily. Arabesque was generally adopted in these countries, also, because the representation of natural and living forms was forbidden.

The words *Ontario Hydro*, whose separate letters replace the usual numerals on a clock face, will stand out against a dark red background. Horticulturally speaking, the word *Ontario* will be represented by *alternanthera*, a green non-flowering plant. The complementing word, *Hydro*, will be depicted by silver-grey *santolina*, also a non-flowering species.

Six circles, with alternate pink centres and white backgrounds, edged with grey *santolina*, will make up the dial area inside the numerals. The background will be green *aurea alternanthera*. In three of the circles, pink and white *begonias* will be used and in the remainder, white and pink *phlox*. Triangles, between the shoulders of the circles, will be formed by blue *pelia*. The one-minute intervals (single plants) and the five-minute intervals (three plants) will be indicated by green *heveria* (glauca). The border area will be green *aurea*, edged with grey *santolina*.

The Hydro clock, constructed in 1950, was inspired by the floral clock in Prince Street Gardens, Edinburgh, but it is more than three times as large as its Scottish counterpart. The dial of the colorful Hydro time-piece is 38 feet in diameter, and has a planted area of

1,130 square feet. The clock is in operation all year round. During the winter months, colored stone chips are used in the dial area. The spring planting, covering a period up to approximately June 1 each year, consists of tulips and forget-me-nots as the danger of frost prevents planting of summer foliage before this date. This year, the summer "face," as in previous years, will be composed of some 18,000 carpet plants.

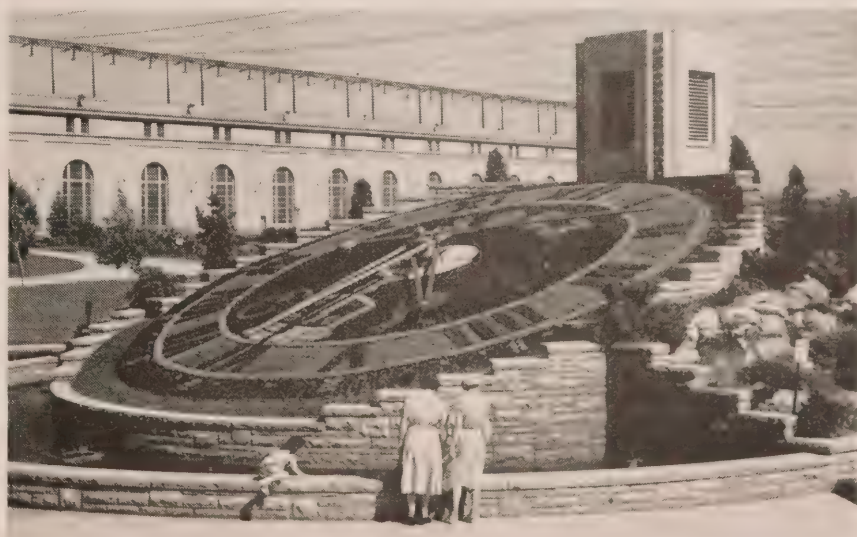
Last year, in honor of Her Majesty Queen Elizabeth II, the clock had a coronation motif, winning many admiring comments.

As a tourist attraction it is enjoying ever-increasing popularity. In the past two or three years it has become a popular custom to toss pennies and other coins into the ornamental fish pool, at the base of the clock, as a gesture to Lady Luck. The amount of money

taken from the pool at the end of each summer season is a fairly accurate yardstick of the number of tourists stopping to admire the unique time-piece in the preceding summer months. At the end of the 1953 season, attendants collected a substantial sum in coins of various denominations from the floor of the pool—approximately three times the 1952 season's total—the proceeds being donated to the Greater Niagara Region Community Chest.

Representatives of Ontario Hydro's Niagara Region, who have charge of the clock, are quite confident that this denotes a greater influx of visitors last year. If not, then 1953 tourists must have been more than ordinarily wishful!—by H. B. Wood.

IN HONOR of Queen Elizabeth II, dial of Hydro's floral clock last year incorporated an interesting and colorful Coronation motif.







SPANISH AERO CAR HAS BEEN OPERATING SINCE 1916

# ANOTHER "WONDER" ALTERED

NIAGARA'S renowned Spanish Aero Car, which has taken thousands of Canadians and visitors from all parts of the world on breathless rides above the Niagara River's great Whirlpool, recently was added to the long list of electrical wonders involved in Ontario Hydro's 25-to-60-cycle changeover program.

Standardization of the famous car called for the alteration of the big 75-horsepower motor which propels the unique car back and forth across the deep gorge of the river, just north of Niagara Falls, Ontario.

The change in frequency will make no appreciable difference to the operation of the aerial "trolley," known officially as the Spanish Niagara Aero Car. At 60 cycles, as at 25, the motor will continue to operate the car at the comfortable speed of five miles per hour.

The six stout cables, on which the car travels, are said to be among the longest cables of their kind in the world. They stretch, unsupported between terminals, for a distance of 1,800 feet. A return trip over the gorge takes about 10 minutes.

The car was the invention of Spanish engineer, Leonardo Torres Quevado, and it is still owned and operated by the Spanish company which built it. I made its maiden voyage above the whirlpool on August 9, 1916.

With frequency changeover, it became a unique addition to the growing list of unusual electrical items which have been switched to 60-cycle power during the course of Hydro's huge Southern Ontario frequency standardization program.—by *Allan A. Jones*.



# ANNOUNCE KENT COUNTY CHANGEOVER SCHEDULES

**F**REQUENCY standardization operations in Area "G," which comprises a 1,304 square mile section of the County of Kent, and includes the municipalities of Chatham, Tilbury, Merlin, Erie Beach, Wardsville, Thamesville, Ridgetown, and surrounding rural areas, is tentatively scheduled to commence in November, 1955, and to be concluded in November, 1956.

Changeover in Area "G" will commence in Chatham in November, 1955. Following standardization of this city, the program will proceed in the rural areas and smaller municipalities and be completed with changeover of the Wardsville Hydro-Electric Commission in November, 1956.

Area "G" is one of the largest of the 21 areas into which the 25-cycle Southern Ontario System has been mapped for planning purposes, being exceeded in size only by Area "C"—the City of London and County of Middlesex, and Area "D"—Stratford, St. Marys, Goderich and surrounding rural areas, where changeover to 60 cycles has been completed. There are approximately 19,700 domestic, 2,500 commercial, and 330 power customers in Area "G."

Negotiations are already proceeding with power customers concerning changeover of their plants, because approximately a year is required to engineer, order and receive delivery of industrial 60-cycle replacement equipment, and the preliminary work in this connection is commenced some 18 months or so before changeover.

## Domestic Inventory

Inventories of the frequency-sensitive appliances of domestic and commercial customers are taken four to six months before changeover. While the exact number of appliances to be standardized in Area "G" will not be known until the completion of inventories, experience in other areas has shown that domestic customers own, on the average, four frequency-sensitive appliances. On this basis, therefore, approximately 79,000 frequency-sensitive appliances will be changed over for domestic customers alone in Area "G."

The following schedules are tentative and will be varied from time to time if necessary:

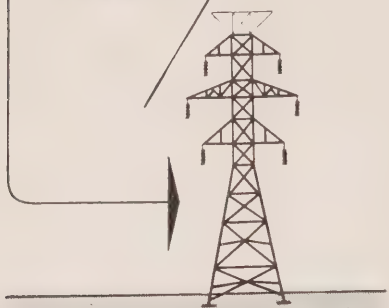
## Customers

Domestic	Commercial	Changeover to 60 cycles
5,970	937	CHATHAM PUBLIC UTILITIES COMMISSION. November and December, 1955; January and part of February, 1956;
580	29	CHATHAM RURAL OPERATING AREA (Grand Avenue Distributing Station) Second and third weeks February, 1956;
1,379	96	(Grand Avenue Distributing Station) Second and third weeks February, 1956;
		CHATHAM R.O.A. (Raleigh D.S.) Last 2 weeks February, 1st 3 weeks March, 1956;
162	59	MERLIN HYDRO - ELECTRIC SYSTEM. Third week of March, 1956;

1,000	86	MERLIN R.O.A. (Merlin D.S.) Last 2 weeks March, first week April, 1956;
865	170	TILBURY PUBLIC UTILITIES COMMISSION. Second and third weeks of April, 1956;
452	42	MERLIN R.O.A. (Tilbury D.S.). Last week April, first week May, 1956;
25	2	ESSEX R.O.A. (Tilbury D.S.). First week May, 1956;
162	59	COMBER HYDRO - ELECTRIC SYSTEM. First week May, 1956;
880	48	MERLIN R.O.A. (Comber D.S.). Last three weeks May, 1956;
775	175	BLENHEIM PUBLIC UTILITIES COMMISSION. Last week May, first week June, 1956;
1,223	75	BLENHEIM R.O.A. (Blenheim D.S.) Month of June, 1956;
268	25	ERIEAU HYDRO - ELECTRIC SYSTEM. Last week June, first week July, 1956;
123	4	ERIE BEACH HYDRO-ELECTRIC SYSTEM. First week July, 1956;
757	175	RIDGETOWN HYDRO-ELECTRIC SYSTEM. First two weeks July, 1956;
329	17	RIDGETOWN R.O.A. (Ridgetown D.S.). Third week July, 1956;
120	30	HIGHGATE HYDRO - ELECTRIC COMMISSION. Last week July, 1956;
329	17	RIDGETOWN R.O.A. (Highgate D.S.). Last week July, last 2 weeks August, 1956;
848	27	RIDGETOWN R.O.A. (Rondeau D.S.). Last week August, first week September, 1956;
1,078	86	CHATHAM R.O.A. (Chatham D.S.). Month of September, 1956;
310	100	THAMESVILLE PUBLIC UTILITIES COMMISSION. Last week September, first week October, 1956;
1,013	65	BOTHWELL R.O.A. (Thamesville D.S.). First three weeks October, 1956;
223	65	BOTHWELL HYDRO - ELECTRIC COMMISSION. Last week October, 1956;
662	70	BOTHWELL R.O.A. (Bothwell D.S.). Last week October, first week November, 1956;
101	23	NEWBURY HYDRO - ELECTRIC COMMISSION. Second week November, 1956;
97	25	WARDSVILLE HYDRO-ELECTRIC COMMISSION. Second week November, 1956.



# ALONG HYDRO LINES



## Cost \$5,039

WINDSOR Utilities Commission reports a cost of \$5,039.00 to collect 42 percent of the \$959,000.00 taken in on 1953 water accounts. Of the total amount, 72 percent was collected by outside agencies such as banks who received a small commission for their services in collecting the bills. Accounts are payable at any bank in the city without cost to the customer. The Windsor commission pays the bank 7 cents per bill for amounts under \$15, and 10 cents for all accounts in excess of \$15. One-third of all the bills were paid at the Hydro Division office and the Water Division paid \$1,372.20 to Hydro for this service. This arrangement seems to be appreciated by Hydro and water customers.

## Report Expansion At Burlington

**SUBSTANTIAL GROWTH** during 1953 of the Burlington Hydro-Electric system is reported by Chairman Ralph G. Stirling. During the year, 236 new customers were added, bringing the total to 2,498. This is an increase of 10.5 percent over the number supplied in 1952.

## Paris Reports Operating Surplus

PARIS Public Utilities Commission reports an operating surplus in the Hydro Department during 1953 of \$13,579.00—\$11,674.00 greater than that of 1952. Higher rates were one of the factors in the Hydro surplus, reported C. A. Veigel, Secretary-Treasurer. A deficit of \$397.00 in the commission's power bill arose from a \$12,328.00 charge for frequency standardization.

## Toronto to Replace Outdated Street Lights

A MAJOR program to replace old style street lights in the City of Toronto is being expedited by the Toronto Hydro-Electric System. Crews are now in residential areas replacing 15,200, old 100-watt light with modern refractor units of 300-watt power mounted on alternate poles.

In addition, steel light standards on Yonge Street, from Front to College Streets, will be removed and new facade units will be placed on the faces of buildings. These will hold 750-watt bulbs. At present 500-watt bulbs are in use on Yonge Street.

Maintaining Toronto's street lighting facilities is a tremendous task. While there are some 37,684 street lights in service in the city today, approximately 75,000 street bulbs fail each year.

## U.S. APPROVES SEAWAY BILL

**O**PPPOSITION in the United States to the long-debated St. Lawrence Seaway crumbled on May 6 as the U.S. House of Representatives approved, by a vote of 241 to 158, legislation authorizing U.S. participation in the big project. (The Seaway Bill received President Eisenhower's official signature on May 13.) To become effective, the bill now requires only senate agreement on minor amendments made in the House of Representatives, both of which are regarded as only formalities. It is now up to Canada to decide if the proposal contained in the Seaway bill is acceptable as a basis for reaching a Canadian-U.S. agreement for joint construction of the deep-sea passage.

However, before actual construction, in connection with the St. Lawrence Seaway and Power Project, can commence, the New York State Power Authority must have the final "green light" to proceed with the power phase in conjunction with Ontario Hydro. The authority has accepted its license from the U.S. Federal Power Commission but appeals against the granting of such a license are now pending. Actual construction is being delayed until these possible appeals to the U.S. Supreme Court have been disposed of finally.

Rep. H. B. Scudder (R., Cal.), was reported in newspaper dispatches as announcing that he had been a life-long opponent of the project until his mind had been changed by Ontario Hydro Chairman Robert H. Saunders during a recent visit to Canada. He was quoted as saying also that he had been impressed by "Canada's eagerness to build the channel alone," which "is predicated on its considered judgment the project is sound."

## Hydro Construction Men Meet in Toronto

**MORE THAN 500** Ontario Hydro construction men including foremen and superintendents, from all parts of the province, gathered in Toronto on April 23 to meet with key Hydro officials for their 23rd annual Construction Division Convention.

This important annual conference for Hydro construction personnel enabled them to exchange ideas on new procedures and methods for carrying out the expansion program on the most efficient and economical basis.

This year's convention focussed attention on the possibility of Ontario Hydro proceeding with the St. Lawrence Power project, in the near future, and the satisfactory progress being made by Hydro's 1,828,000-horsepower Sir Adam Beck-Niagara Generating Station No. 1 project, where the first unit went into service during April this year.



## LINDSAY HYDRO PIONEER PASSES

**A**SSOCIATED with electrical distribution in the town of Lindsay for more than 50 years, Miss Minnie C. Edgar died recently after a lengthy illness.

The deceased was born at Bobcaygeon, daughter of the late John Edgar and Frances McConnell. Miss Edgar's mother is believed to have been the first white child born at Bobcaygeon.

Receiving her early education in that village she became a school teacher when only 16 years of age. Following a business course, she joined the staff of the Lindsay Light, Heat and Power Company under the late B. F. Reesor. Miss Edgar continued her association with the town's electrical distribution system when it became a publicly-owned utility as the Lindsay Hydro-Electric Commission.

Retiring several years ago after a successful and lengthy career as Office Manager of the Lindsay Commission, she resided with her nephew, Norman Maidens, at Fenelon Falls. Mr. Maidens is now on the staff of Ontario Hydro's Minden Rural Operating Area. Ald. B. C. Maidens, of Lindsay, is also a nephew. In her 85th year when she died, the deceased was a devoted member of the Church of England.



Late Miss M. C. Edgar

### Honor Veteran Palmerston Lineman

**P**RESENTATION of a wallet and money, accompanied by a framed scroll signifying meritorious service, marked a brief ceremony at Palmerston honoring William L. Hudson, veteran Hydro lineman of the local public utilities staff, on the occasion of his 25th anniversary. J. F. Edwards, M.P.P., and a member of the Palmerston Commission, made the presentation, complimenting the recipient on his record.

### Supply 60-cycle Power To New Hospital

**O**NTARIO HYDRO under its advance frequency standardization program will install temporary distribution facilities to supply 60-cycle power to the new St. Joseph's Hospital in Brantford Township. This will achieve an estimated saving of \$35,000, as it will not be necessary to standardize the equipment when the whole municipality is changed to the higher frequency in 1958.

By Pierson, Chairman of the Brantford Township Hydro-Electric Commission, stated that the new lines will become part of the permanent facilities chargeable, less depreciation, to Ontario Hydro.

### Ontario Hydro Accountant Passes

**O**NTARIO HYDRO NEWS announces with sincere regret the sudden passing of A. E. Halsey, the Commission's Projects Accountant, on May 19. The deceased had been associated with Ontario Hydro's accounting organization since November, 1920, having joined the staff at Niagara Falls during the construction phase of the Sir Adam Beck - Niagara Generating Station No. 1 project, later transferring to Head Office in Toronto. He is survived by his wife and two daughters. (Mr. Halsey's photo appears on Page 3 of this issue, and is believed to be the last photo taken before his untimely death).

### London Club Holds Banquet

**L**ONDON Public Utilities Commission 25-year Club held its 7th annual banquet recently, attended by 71 of the 100 members of the organization. Pins were awarded by Commissioner J. Stewart Killingsworth to Bert Warden, Fred Dear, Angus Bartlett, Jack Blaney, and Mel Bean. Certificates and pins were awarded, and congratulations extended by Dr. C. H. Reason, Vice-Chairman, to Frank Howson, Charles McCallum, Herb Burwell, Arthur Housego and Bob Munro.

### Regional Accountants Discuss Office Methods

**R**EGIONAL Accountants of Ontario Hydro's nine Regions throughout the province met in Toronto, April 28-30, for an office methods and work measurement conference. This is in keeping with Hydro's policy of continually improving its office procedures for more economy and efficiency, which has already "paid off" in the saving of hundreds of thousands of dollars annually.

Top Hydro executives and guest speakers addressed the three-day meeting—following the theme address by A. W. Manby, Assistant General Manager—Administration, Ontario Hydro. Speakers included, among other key Hydro and management consultant personnel, G. F. Davis, Director of Accounting, and F. P. Thomas, Methods Manager.

### Honor Commissioner By Naming Station

**K**ITCHENER'S new high-tension transformer station will be named after H. J. Graber, Chairman of the Kitchener Public Utilities Commission. It will be called the Harvey J. Graber Transformer Station.

A motion to this effect was introduced by Mayor Donald Weber, and was based on the fact that Mr. Graber was the oldest member of the commission, in terms of service, when the project was authorized.

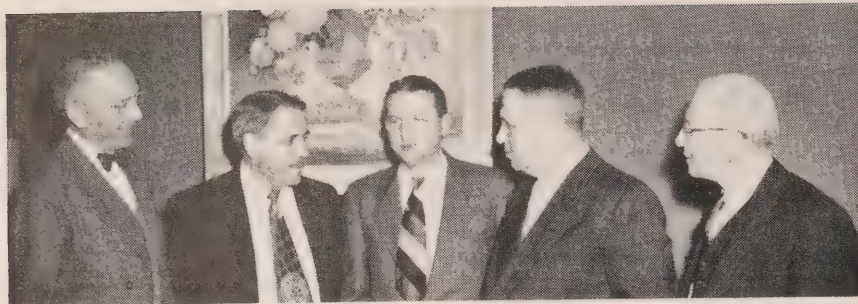
During the same commission meeting, S. E. Preston, General Manager, reported that a record local peak load occurred in March and totalled 43,727 kilowatts. He also stated that there would be a refund of \$23,121.00 on their interim power payments during the past year from Ontario Hydro.

Chief Engineer, A. W. Bromley reported that construction has begun on the control building following the recent approval of the plans. This new station will handle part of the step-down requirements for Kitchener and Waterloo, which are presently handled by Ontario Hydro.

### Assistant Director Named

In order to facilitate the handling of the heavy volume of construction work, and in conformity with similar staff appointments in other Divisions of Ontario Hydro, the appointment of Mr. John E. Stark as Assistant Director of Construction was announced recently by Dr. Richard L. Hearn, General Manager and Chief Engineer.





## HYDRO ENGINEERS HEAR HYDRAULIC EXPERT

**S**ENIOR Ontario Hydro engineers visited Niagara Falls recently to hear an address on experimental investigations of cavitation by Dr. Robert T. Knapp, Professor of Hydraulic Engineering, California Institute of Technology. The group includes, left to right, E. B. Strowger, Chief Hydraulic Engineer, Niagara Mohawk Power Corporation; Dr. Knapp; Orville Johnston, Project Engineer, Sir Adam Beck Niagara G.S. No. 2 development; and master of ceremonies for the dinner meeting, L. S. Bernstein, Chief Design Engineer, Niagara Mohawk Power Corporation; and J. J. Traill, Hydro Hydraulic Consultant.



## HYDRO OUSTS OIL

**J**OHN HARRIS, owner of one of the oldest houses in Preston, Ontario, holds an old-fashioned "Aladdin lamp," one of several which provided illumination for his 80-year old residence before he "switched" over to Hydro recently, as shown in the above picture. Believed to be the last remaining house in Preston to use oil lamps, the home has been in the Harris family for the greater portion of its existence. Mr. Harris' grandfather, the late David Harris, was Preston's original lamplighter, making his rounds each evening and morning to the eight, strategically-located oil lamps with a stepladder.

## Purchase New Site For Brockville R.O.A. Office

**A NEW SITE** for Ontario Hydro's Brockville Rural Operating Area headquarters has been purchased from the Corporation of Brockville. A modern office and a warehouse will be erected from a standard set of plans now being used for R.O.A. offices throughout the province. The office building is designed along ranch-style lines with the warehouse constructed of sectional galvanized metal similar to the quonset-hut style, it is announced by C. L. Mylks, Area Manager.

Construction will start this summer and occupation should take place in the fall.

## Kingston P.U.C. Announces Appointments

**J. KENNETH FEE** has been appointed Senior Engineer of the Kingston Public Utilities Commission, and F. H. Saunders, Superintendent of the water purification plant, it was announced recently by Col. James Harris, Chairman of the Kingston Commission.

Mr. Fee is a graduate of Queen's University, in electrical engineering, having received his degree in 1944. Upon his graduation, and until 1953, he was employed by the Gattineau Power Company as Electrical Engineer and Assistant Superintendent during the latter two years. Obtaining his matriculation Lisgar Collegiate, Ottawa, Mr. Fee, following four years at Queen's, attended a one-year course on automotive, optical, armament and fire control equipment at Barriefield as a lieutenant in the RCEM.

Mr. Saunders has been a resident of Kingston since 1930, and prior to accepting the position of Purification Plant Superintendent was employed as Plant Engineer at Collins Bay Penitentiary for 23 years. He has had extensive experience in marine and stationary engineering covering modern power plant layout and waterworks engineering.

Mr. Saunders is an active member of the Kingston branch of the Institute of Professional Engineers. The new Superintendent served overseas in the First World War with the Canadian Field Artillery and until recently, was actively engaged in sea cadet work in the city, at the time being officer commanding the Lawrence Corps. He was recently honored by Her Majesty, Queen Elizabeth II, by the presentation of the Coronation Medal.



## Member of Pioneer Hydro Family Dies

ROBERT E. REESOR, 38, formerly associated with the Lindsay Hydro-Electric Commission, died recently at his home in Toronto.

His grandfather, the late Benjamin Reesor, introduced Hydro both to Lindsay and Newmarket, while his father, the late Walter E. Reesor, was Manager of the Lindsay Hydro-Electric System for many years. Born in Lindsay, the deceased was a member of Timothy Eaton Memorial Church. Surviving are his mother, Mrs. Emily Reesor; a sister, Mrs. D. Mumford, and a brother, John F. Reesor of Hamilton.

## Name Strathroy Area Manager

WILLIAM H. PASSMORE, of Ridge-town, has been appointed Ontario Hydro's Area Manager at Strathroy, succeeding V. A. Pottruff, who has been transferred to the Commission's Western Region headquarters at London.

Mr. Passmore joined Hydro in 1921, and with the exception of a short period, has been connected with Hydro in Ridge-town. He was Assistant to the Manager here, receiving his 25-year service medal in November, 1949.



## WAKEFIELD BAILEY

Who was among the 30 veteran municipal Hydro commissioners receiving long-service awards from the Ontario Municipal Electric Association this year. Mr. Bailey served on the Hydro System of the Village of Kirkfield, near Lindsay, for 25 years, was unable to be present at the M.E.A.-A.M.E.U. convention this year to receive his award personally.



EXTENDING congratulations to Mr. Dale, second from left, are Bertram Merson, Chairman, and J. S. McGregor, Assistant General Manager, Toronto Hydro, and E. W. McLeod, Ontario Hydro.

## VETERAN MEMBER HEADS ELECTRIC CLUB

GEORGE T. DALE, President and Founder of the Electrical Maintenance and Repairs Company Ltd., was recently elected President of the Electric Club of Toronto at the annual meeting and election of officers. This club, founded in 1916, is the largest of its type in Canada with a membership of 940.

The year 1954 has a further special significance for Mr. Dale, as he will celebrate his Golden Wedding anniversary in November and the 50th anniversary of the founding of his business this month.

Mr. Dale was born in Toronto where he received his primary and secondary education. A veteran member of the Electric Club, Mr. Dale has served with distinction as chairman of numerous committees. As well, he is a council member of the Royal Astronomical Society of Canada and the Royal Canadian Institute. He is also a Past Master in the Masonic Order. His hobby is wood-carving.

Other members of the 1954-55 executive are: Past President, M. B. Hastings, Powerlite Devices Ltd.; Vice-Presidents E. W. McLeod, H.E.P.C. of Ontario; I. M. MacLean, Canadian General Electric Co. Ltd.; H. M. Morris, Bell Telephone Co. of Canada; H. R. Fardoe, Moloney Electric Co. of Canada Ltd.; C. A. Ogilvie, N. C. Slater Co. Ltd., and W. J. Wylie, Toronto Hydro-Electric System. Secretary is I. D. A. Cook, The Bell Telephone Co. of Canada, while R. R. Logan, Toronto Hydro-Electric System is Treasurer.

Executive Committee members are: W. G. Pengelley, Canadian Westinghouse Co. Ltd.; G. A. Brace, Ferranti Electric Ltd.; T. A. Lindsay, Phillips Electrical (1933) Ltd.; George Appleton, Toronto Hydro-Electric System; J. H. Smith, Canadian General Electric Co. Ltd.; W. H. Paterson, Toronto Transit Commission; R. L. Mooney, Square D. Company Canada Ltd.; J. R. Montague, H.E.P.C. of Ontario; C. D. McCaig, Amalgamated Electric Corp. Ltd.; W. N. Herod, Canada Wire & Cable Co. Ltd.; H. E. C. Smith, The Bell Telephone Co. of Canada; A. G. Haley, Northern Electric Co. Ltd.; N. Holmes, British General Electric Co. (Canadian) Ltd.; C. A. Morrison, Canadian General Electric Co. Ltd.; S. R. Spence, National Carbon Company; I. S. Paterson, Canadian Controllers Limited, and E. G. McCracken, Sangamo Company Limited. Auditors: W. D. Brown, Minneapolis Honeywell Regulator Co. Ltd., and J. H. Kearns, Toronto Transit Commission.—by H. B. Wood.


## LUCKY 13

(Continued from page 18)

Nipissing, the township's regular 2,800 population is considerably augmented during the summer months by an influx of tourists and owners of summer cottages. Bordering Ontario Highway No. 11, the township has an area of 11,147 acres.

Although administered by the Township Council at present, it is expected that a Hydro commission will be formed and commissioners elected at the next municipal elections.





*Spring Harvest*



ONTARIO HYDRO  
*News*

JUNE, 1954





# ONTARIO HYDRO

## News

JUNE, 1954

Vol. 41

No. 6

Published by

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO  
620 UNIVERSITY AVENUE, TORONTO



### A DREAM BECOMES A REALITY

**E**LSEWHERE in this issue we refer to the recent decision of the Supreme Court of the United States in giving final approval to the license of the New York State Power Authority to proceed (jointly with Ontario Hydro—the Canadian agency) with the long-proposed power development of the International Rapids Section of the St. Lawrence River.

The decision of the U.S. Supreme Court in favor of the Power Authority's license was one of paramount importance, clearing away, as it did, the final obstacle in the path of this great project. It marked the culmination of an almost interminable series of international discussions and treaties extending back over the past 30 years. Under Sir Adam Beck, first Ontario Hydro Chairman, for example, the Commission instituted studies of the International section of the river after the first World War.

Since that time, negotiations have followed a tortuous and often disappointing course. While Canada and Ontario Hydro, and, in fact, a preponderant segment of U.S. citizens have been eager to move forward with the project, certain selfish interests in the United States were, for many years, successful in blocking the project. It is a source of pride to realize that Ontario Hydro has spearheaded the campaign to make the power and navigational potentialities of the river available to the citizens of Canada and the U.S. The Ontario Government, through its Prime Minister, the Hon. Leslie M. Frost, and the Canadian Government, through such prominent spokesmen as Prime Minister Louis St. Laurent, Rt. Hon. C. D. Howe, Hon. Lionel Chevrier, and Hon. Lester B. Pearson have been equally vigorous in pressing for a start on the development.

The benefits to be derived are almost limitless. First it will give North America several additional thousands of miles of coastline, permitting vessels of many nations to enter the heart of the continent, thus making important seaports of such places as Belleville, Toronto, Windsor and the Lakehead cities, to mention only a few.

The power benefits will be equally impressive. Ontario and New York State will be able to develop 12,600,000,000 kilowatthours of low-cost electricity a year, this output to be divided equally between the two systems. For the Commission, it will represent the 16th power development undertaken since the end of World War II, adding another 1,100,000 horsepower to its resources. It comes as a long-awaited, but nevertheless a gratifying and fitting climax to Hydro's great postwar expansion program involving such projects as the gargantuan, 1,828,000-horsepower Sir Adam Beck-Niagara Generating Station No. 2, already in operation, but destined to be officially opened on August 30 this year by none other than Her Royal Highness, the Duchess of Kent.



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SUBSCRIPTION: \$2.00 PER YEAR

Authorized as second class mail,  
Post Office Department, Ottawa.

#### CONTENTS

Falls "Face-Lift"	-----
House of Healing	-----
Out of the Squirrel Cage	-----
Hydro's Singing Ambassadors	-----
A Tremendous Decision	-----
Foto News	-----
School for Teachers	-----
Going Up	-----
Along Hydro Lines	-----

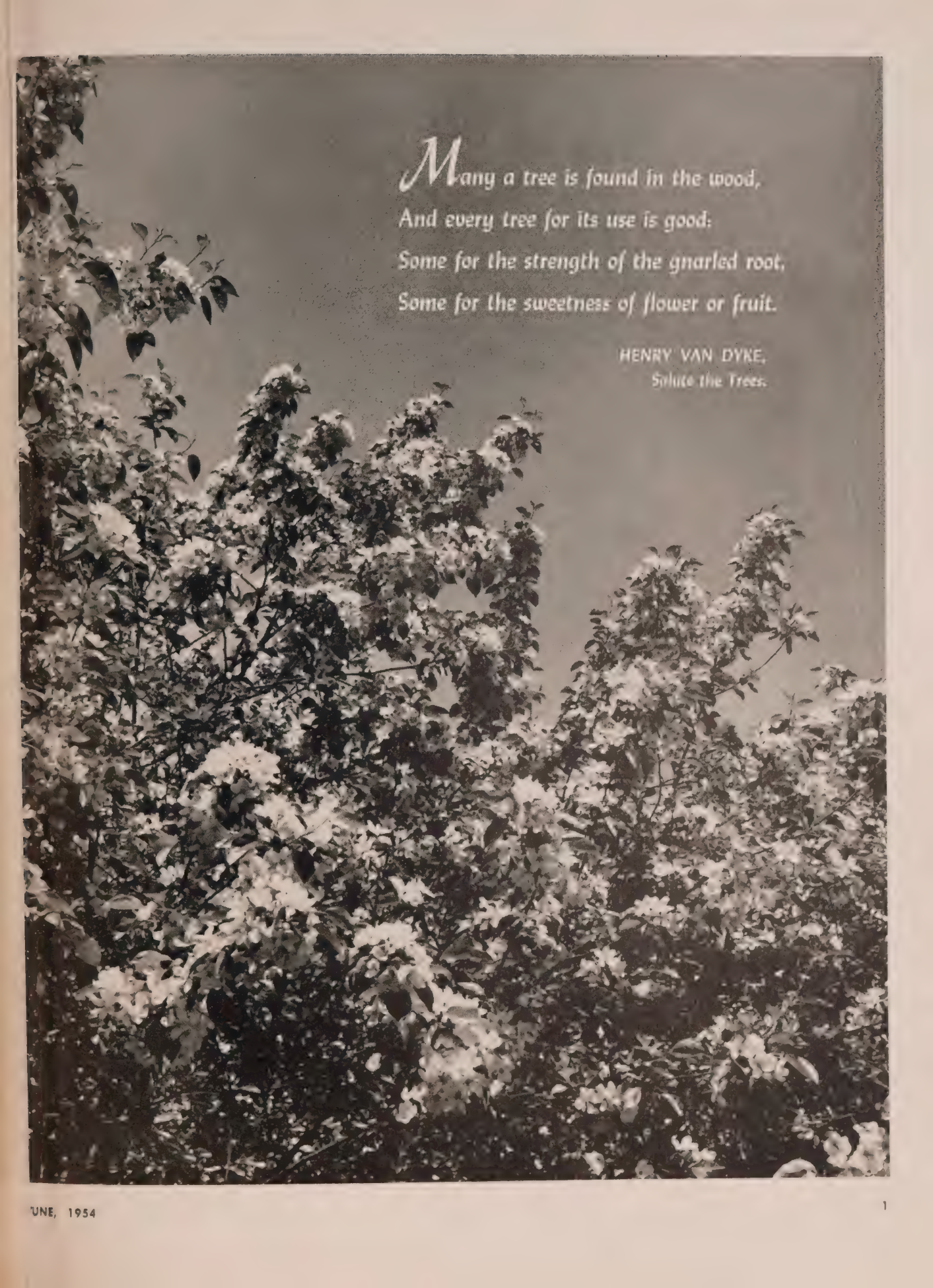
#### COVER SHOTS

**O**UR front cover shows Chief Technician Robert Fisher examining X-ray plates at Toronto's new Mount Sinai Hospital where Hydro is the willing and ready ally of the efficient staff as the reader will discover in our story, "House of Healing," on Page 4.

Power for the many complex, electrically-operated machines which medical science uses in its never-ending fight against disease and suffering is transmitted by the Commission over an intricate network of high-voltage lines such as the ones shown on our back cover.

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*Many a tree is found in the wood,  
And every tree for its use is good:  
Some for the strength of the gnarled root,  
Some for the sweetness of flower or fruit.*

HENRY VAN DYKE,  
*Salute the Trees.*



**Officially mark  
beginning  
of Niagara Falls  
Remedial Works  
Program**



# FALLS "FACE-LIFT"

**S**TART of a four-year \$17,500,000 conservation and remedial works program to preserve and enhance the scenic beauty of famed Niagara Falls was officially marked June 2 by two international "ground-breaking" ceremonies. The project will virtually eliminate the centuries-long problem of erosion of the Horseshoe Falls, create an unbroken curtain of water over the historic Cataracts, and at the same time permit the most effective use of water for power generation on both sides of the Niagara River.

Some 200 special guests, including government leaders from both Canada and the United States, civic administrators, the Niagara Parks Commission, representatives of labor, and press, radio and television, witnessed the initiation of the program which has been termed "conservation in its truest sense."

On this highly significant occasion, Ontario Hydro Chairman Robert H. Saunders paid tribute to Canadian and United States engineers who worked closely together on all phases of the program. Mr. Saunders said their co-operation was further evidence of the goodwill which exists between the two countries.

The first of the two ceremonies signalling the official start of the program took place on the American side of the

river, at Terrapin Point on Goat Island when Roger B. McWhorter, Acting Chairman, U.S. Section of the International Joint Commission, pushed a plunger to detonate a charge of dynamite. A short time later, on the Canadian side, General A. G. L. McNaughton, Chairman, Canadian Section of the I.J.C., drove a marker into the ground.

## Inauguration Ceremony

Mr. Saunders presided at the joint ceremony in the new Ontario Hydro Information Centre near Table Rock House and introduced the two principal speakers: Hon. Jean Lesage, Canadian Minister of Northern Affairs and National Resources, and the Hon. John Slezak, Under Secretary of the Army (U.S.A.), who highlighted the features of the historic undertaking. The Information Centre, located in a section of the stone building just south of Table Rock House, will be staffed with Ontario Hydro guides to provide the public with literature and information on the remedial works during construction.

Canadian members of special committees created by the I.J.C. were: T. M. Patterson, Department of Northern Affairs and National Resources; Guy A. Lindsay, recently retired Chief, Special Projects Branch, Dept. of Transport; (International Niagara Falls Engineering

Board); Dr. Otto Holden, Ontario Hydro Assistant General Manager—Engineering, and C. G. Cline, Senior Assistant Engineer, Water Resources Division, Department of Northern Affairs and National Resources (Working Committee).

The remedial works program was recommended by the I.J.C. after Canada and the United States requested the Commission in accordance with the terms of the Niagara Diversion Treaty of 1950 between the two countries, to investigate and report on the nature, design, construction and cost of the necessary work.

The terms of the Niagara Diversion Treaty called for construction of remedial works in order to preserve and enhance the beauty of the Falls while making available larger amounts of water for power generation. The cost of remedial construction is being shared equally by Canada and the United States with the work being handled by Ontario Hydro and the Corps of Engineers, U.S. Army.

The necessity for remedial measures was evidenced by the fact that the tremendous force of water sweeping over the Horseshoe Falls has gradually cut back its natural crestline, creating an uneven flow of water along the rim of the precipice. In less than 200 years, the Horseshoe Falls has receded 865 feet.



A photograph indicates structure, fills and excavations in the Niagara River, which will be undertaken in carrying out the remedial program.

HON. Jean Lesage, Canada's Minister of Northern Affairs and National Resources spoke during the inauguration ceremony.

THIS map, showing the location of the recommended improvements for the preservation and enhancement of Niagara Falls, illustrates the scope and effect of the remedial program.



and, although the rate of recession has been gradually declining in more recent years, it was still receding at the rate of 2.2 feet per year up to 1950.

### Reducing Erosion

Diversion of water above the Falls for power since 1900 has been responsible for reducing erosion considerably, and the remedial works to be constructed will make it negligible.

In order to carry out the program, construction will follow three major phases:

(1) A control structure in the Chippawa-Grass Island Pool area will be built on the Canadian side of the Niagara River. This modern, graceful structure will be about 1,550 feet in length, and will contain 13 sluices or openings which will be equipped with control gates.

The purposes of the dam are to control the water level in the Chippawa-Grass Island Pool area, which is the site of



SYMBOLIZING Canada's role in the important project, General A. G. L. McNaughton, Chairman, Canadian Section, International Joint Commission, placed a marker, held by Hydro Chairman Robert H. Saunders, left, and T. M. Patterson, Canadian Dept. of Northern Affairs and National Resources.

intake works for both the United States and Canadian power developments and to maintain the present satisfactory flow over the American Falls.

(2) In order to produce an unbroken crestline and achieve the desired even distribution of flow over the Horseshoe Falls, two areas will be excavated. On the Canadian flank of the Horseshoe Falls, approximately 64,000 cubic yards of rock in the channel will be excavated. The second area on the Goat Island flank of the Horseshoe Falls, will require removal of 24,000 cubic yards of rock.

(3) To eliminate incidental flows over the extremities of the crest, and to permit an unbroken curtain of water to flow over the precipice, fills will be added to the ends of the Horseshoe Falls. On the American side, the fill, landscaped to blend with the gorge formation, will provide a most desirable attraction for visitors to the Falls. From this new vantage point, onlookers will be able to view in a more intimate way the majesty and power of the Cataract.

### Scale Models

In order to determine what remedial works would be necessary and the best methods of constructing them, Canadian and U.S. engineers used two hydraulic scale models. One of these was built by Ontario Hydro at Islington, Ontario, the other by the Corps of Engineers, U.S. Army, at Vicksburg, Mississippi. The decision to proceed with the present

program was based directly upon the results obtained from them. By use of these models, it was possible to simulate any given river flow—past, present or future—and remedial works in miniature were inserted in the models at any point desired. Their performance could therefore be studied under a wide range of river conditions.

Following exhaustive investigation of the remedial problem, the results were submitted to the International Joint Commission and eventually led to the program of remedial works now underway. Awarding of a \$1,813,149 contract to Canadian Vickers for 13, 100-foot bascule-type gates and operating machinery for the control dam structure was announced recently. In addition, the Corps of Engineers, U.S. Army has awarded a contract for the excavation work on the Goat Island flank of the Horseshoe Falls.

Apart from this program, the Niagara Diversion Treaty has enabled the permanent diversion of greater amounts of Niagara River waters to be used for generation of electricity on both sides of the international border and permitted Hydro to begin construction, in December, 1950, on its largest hydro-electric development, the 1,828,000-horsepower Sir Adam Beck-Niagara Generating Station No. 2. After slightly more than three years of intensive activity, the first of the plant's eventual 16 units went into operation early this spring. The power plant will be opened officially August 30 by Her Royal Highness the Duchess of Kent. □

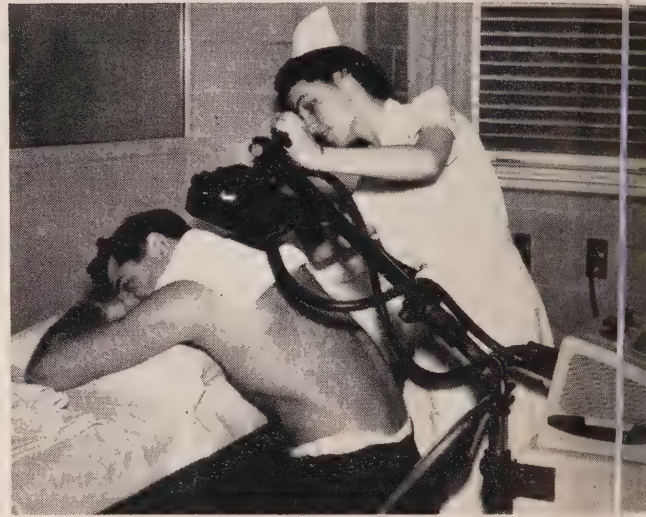


ELECTRICITY HAS MANY VITAL AND INDISPENSABLE  
APPLICATIONS IN THIS NEW AND MODERN TORONTO

# HOUSE OF HEALING



**CHIEF TECHNICIAN** Byron Calovoulos at the control board of an electro-encephalograph used to detect brain tumors or other abnormalities.



**PATIENT** Jack Hotz receives a short wave diathermy treatment administered by Physiotherapist Eleanor Lotto at Mount Sinai.

**L**ATEST completed addition to University Avenue's family of big buildings is new Mount Sinai Hospital, rated among the most up-to-date of any on the whole continent.

Costing approximately \$7,300,000 — 80 percent of which was raised by the local Jewish community — the hospital, a few doors south of Ontario Hydro's Head Office, is a significant contribution to the country's fight against disease.

From the outside, new Mount Sinai Hospital prompts second looks with its clean, modern lines, and light buff brick exterior stretching up for 12 storeys to a solarium. By night, its lights — like those of companion hospitals across the avenue — are a beacon for speeding ambulances and taxicabs, and a haven for the sick of all ages and creeds.

Those electric lights stand for other things too!

Man's conquest over darkness, the modern hospital's round-the-clock battle against the darkness of pain and disease, and the electrical engineer's magical transmutation of the energy of falling water and coal to electricity, the willing hand-maiden of healing.

This mysterious element — electricity, however, reaches the hospital in the conventional manner. It is supplied from the feeders of the Toronto Hydro-Electric System through equipment capable of handling a load of 750 kilowatts — more than sufficient for the hospital's peak demand of some 500 kw. Should a power failure occur, a six-cylinder, 400-ampere diesel unit kicks into operation within 47 seconds, capable of handling 30 percent of the hospital's electrical needs.

Through Hydro's advance 60-cycle power supply, significant economies were achieved by installing 60-cycle equip-

ment throughout this large institution which is among the first major public buildings in Toronto to operate at the higher frequency. By contrast, the rest of the city not affected by the advance plan, will begin standardization next year and continue until 1960 (with the exception of Yonge Street where operations have been underway in the past weeks).

Mount Sinai has a capacity of 300 adult patients and 97 bassinets and embodies the best practices and latest thinking in large Canadian and American institutions. These were "ticked off" during a pre-construction fact-finding tour by members of the hospital board. Patient comfort received top priority during every step of planning and construction. To each decision the question was put: "Is this the best thing for the patient?"

The latest in hospital equipment was ordered, again in the light of its ability




by HERBERT B. WOOD



 NEW Mount Sinai Hospital is a graceful addition to Toronto's University Avenue. The handsome 12-storey structure was built by the Jewish Community.



 THIS electrical device, operated by Technician Esther Cantor, is used to dehydrate tissue samples for examination. Process takes 16 hours.

to do the best job possible for patients and staff.

Here's a striking example of this type of thinking:

Two-thirds of the beds are equipped with fractional horsepower motors enabling them to be raised and lowered to ensure easy and safe exit from bed by the patients. This is closely related to modern surgical methods which favor raising every patient out of bed 24 hours after an operation.

#### X-ray Valuable Aid

Among the most versatile of Mount Sinai's electrical handmaidens is the X-ray. It makes use of the rays emanating from a Roentgen tube, named for its German discoverer. Not only does it perform the common task of assisting the surgeon in setting broken bones, but it is an invaluable factor in the care and control of malignant disease. It is a

powerful tool in the hands of the skilled diagnostician in locating tumors, and in better understanding the idiosyncrasies of little-understood diseases such as epilepsy.

Every patient admitted to Mount Sinai is given a radiograph or X-ray. Besides three portable machines for use in the wards, there are six large units of the latest rotating anode type. This permits a greater voltage to be used safely, resulting in greater definition in the X-ray plates. A photo-timer on these machines ensures uniform exposures, for accurate comparison, particularly necessary in studying changes in bone structure such as occur in osteomyelitis cases.

Other equipment includes a portable fracture table. This is equipped with a fluoroscope or fluorescent screen to enable the doctor to watch the bone as he sets it. Fluoroscopy, as this application of the X-ray machine is termed, is used, as

well, in the hospital for observing the action of internal organs.

A further use of the X-ray machine is in craniography for the study of the brain to detect aneurisms or abnormalities in the veins and arteries. These investigations are leading to a better understanding of the causes and ultimate cure of epilepsy, brain tumors, etc.

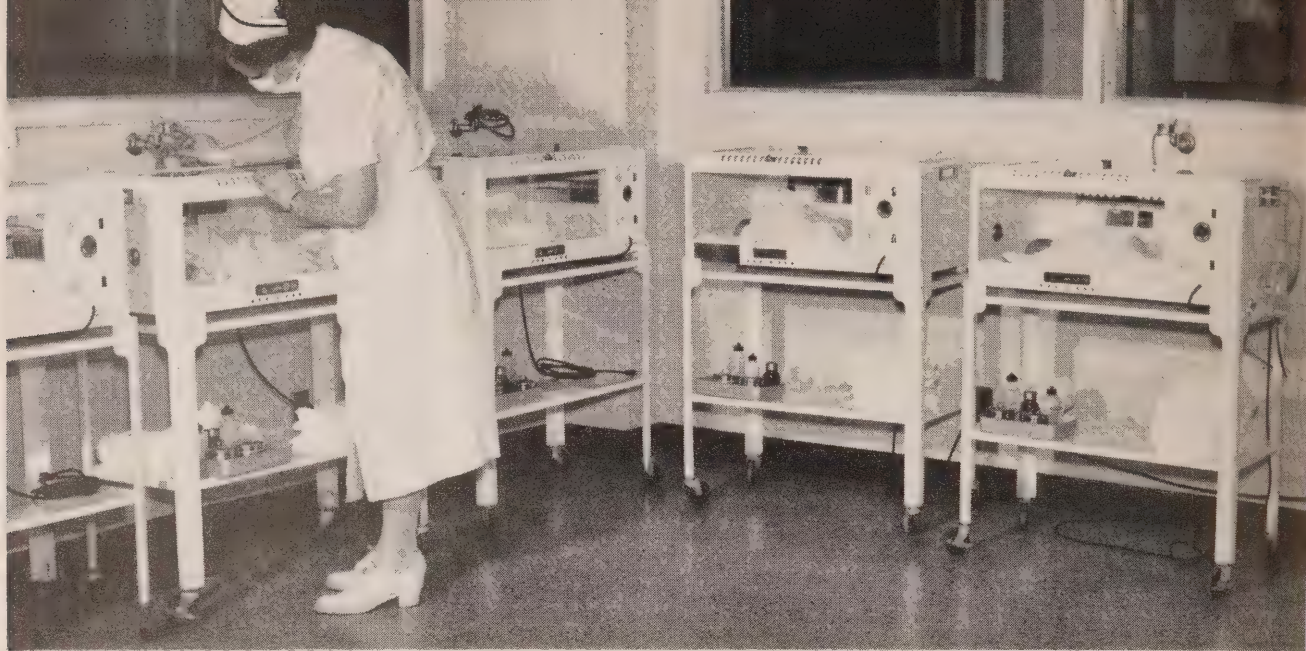
As well, the hospital is equipped with both superficial and deep therapy units. Provision has been made for isotope experiment and therapy which will be installed at a later date.

#### Deep Heat Treatment

A great deal of electrical equipment is used in the physio-therapy department for the treatment of nerves, muscles and joints. Great strides have been made in the application and development of this

*(Continued on page 6)*





**NURSE** checks thermostat on an electrically-operated incubator in a Mount Sinai nursery.

type of physical medicine. Among the different pieces of equipment is the diatherm, or short-wave machine which provides deep heating; microtherm, which has shorter waves and works on the principle of the reflecting radio wave; ultra violet light for use in curing skin diseases, and infra-red lamps for reducing arthritic and rheumatic pain. "Bakers," using the heat from electric lamps, promote and increase blood circulation. Further treatment given in Mount Sinai's physiotherapy department includes soaking damaged legs or arms in hot wax and immersion in warm baths of whirling water, to vitalize semi-atrophied muscles and tissues.

And now up eleven floors to Surgery, to those rooms, where doctors, nurses, and their assistants, in green uniforms, stand four-square to dispute the right-of-way with diseases known and unknown. Here, the electrically-powered instrument in the hand of the skilled surgeon is a magic wand. One of the most versatile and important electrical units is the physio-diatherm. This latest addition to the family of electro-surgical units has become increasingly popular since the war when it proved its worth as a quick blood coagulator.

#### Physio-Diatherm

The physio-diatherm has a variety of applications, among these is the treatment of detached retina. With a small electric needle, the surgeon "spot welds"

the retina in a delicate operation. With a scalpel attachment — blunt to the touch — the machine produces high frequency waves which cut tissues without bleeding. This feature is particularly necessary in cancer surgery to reduce the hazard of spreading. Touch the knife to an artery clamp, and it instantly seals the artery, permitting the clamp to be removed.

Over the heads of the surgeons in the six operating rooms, a 500-watt tri-lite in a single huge parabolic reflector gives a shadowless light. A special heat resistant glass filter allows a maximum of one degree rise in temperature per hour at the surgeon's head. As well, this filter provides a color-corrected light, enabling color pictures to be taken in their proper tones.

Even the clock on the operating room wall, the speed of its second hand inexorably controlled by a steady 60-cycle supply of Hydro power, is important in a special way. It records the time — 90 seconds in all — that the surgeon is permitted to cut off the blood supply to the brain during a brain operation.

The histology department, dealing with the preparation and study of tissues, is an important adjunct in the diagnosis and ultimate cure or control of disease. Electricity here is used in a novel method of honing the microderm knife which slivers the tissue samples to a thinness of 1/10,000ths of an inch. While the stone — looking very much like a phonograph turntable — is rotat-

ing, an arm holding the blade at the correct angle comes into contact with the honing wheel. After a minute or two, the arm automatically lifts, a swivel-joint flips the blade over, and the opposite side is brought to bear on the wheel. In the same room, an electrically-operated machine runs a series of samples through 12 varied-colored solutions which dye and fix the tissue for the best study.

In the orthopaedic department, electrically-powered drills and saws are used in a variety of work: Take bone grafting, for instance. An adjustable twin bladed saw permits the surgeon to excise an exact section of bone for mortising. Another saw has a split personality. It is arc-shaped, and operates with an oscillating movement which cuts through bone or plaster casts quite handily, but will not cut skin. Both examples typify the happy marriage of modern and specialized design, with a versatile and reliable source of electric power.

#### Communication Systems

When it came to deciding on the type of patient-nurse communication, the late in two-way radio communication was set aside in favor of the older signal system. When a patient pushes a button, a light flicks on at the nurses' floor station and cannot be turned off until the button is reset. In this way all calls receive the same priority, and there is no chance of a call being overlooked as might be the case if it was committed to memory.



**ELECTRIC** microderm knife which can shave off tissue samples down to 1/10,000th of an inch thick is being prepared for sharpening on glass turntable by X-ray Technician Lora Kritzman.



**WEARING** protective glasses, Physiotherapist Anne Prime "times" the exposure duration of this ultra-violet lamp which is used in the treatment of skin diseases.



Although each room has provision for air-conditioning and television reception, these refinements were not intended to be paid for by all patients, and, thus, are installed only upon the request of the patient.

A determined and successful effort to de-institutionalize the interior of the hospital has resulted in pleasant and varied color schemes for hospital wards and departments. Drapes and pictures have been used throughout the building.

Locating "the doctor in the house" is little short of instantaneous, what with three electrical gadgets available. Doctors entering and leaving the hospital notify the main switchboard by simply flicking a switch as they pass the reception desk. This illuminates their name on a call board located in the switchboard office, at the emergency entrance and the reception desk. Should a call for a particular doctor come in, the operator simply flicks another switch and light beside his name flashes on. When the doctor notices the light he calls the operator and receives the message.

Similarly, as he leaves the building, he presses a switch, the light goes out, and the operators know that he has left the hospital.

If a call demanding a doctor's immediate attention is received (with the exception of those in the operating room), the operator writes the message with a pencil of steel on the telautograph which reproduces it simultaneously on small machines at all nurses' stations on each floor, and in key positions throughout the building. At the same time, the doctor's personal code number is flashed on each floor. This eliminates the usual public address system which is often disturbing to the patients.

The heart of the telephone exchange which receives between 800 and 900 calls daily is located in an adjacent relay room. It receives very special treatment: No dusting is permitted, and the blinds always are drawn tightly to minimize the amount of light. Every three months, the room is vacuumed by a representative from the telephone company.

Special attention has gone into provid-

ing Mount Sinai with the best in elevator service and equipment. Visiting hours in this hospital are a real rush-hour with relatives of patients crowding in with flowers or little delicacies. There are four ultra-modern elevators serving 12 floors operating at 500 feet per minute. Each unit is equipped with high-speed, power-operated doors. A fifth elevator is strategically located adjacent to the emergency entrance, providing a rapid transfer of the patient to the operating rooms on the eleventh floor. The four main elevators are automatically coordinated to distribute service to all floors in the most efficient and uniform manner, regardless of what different traffic conditions arise. An electrical brain composed of an intricate master control panel located on the top floor neatly matches elevator service to demand.

#### **Electric Conveyor Belt**

In the kitchen, the heart of the operation is an electrically-powered conveyor belt which transports the trays past the warming oven where the food is served,

*(Continued on page 19)*



# Out of the Squirrel Cage

**Ontario Hydro's new electronic calculator  
saving hundreds of manhours and providing  
rapid answers to numerous complex problems**

**by HORACE BROWN**

**W**HAT would the present total be if all the persons born on earth since 5000 B.C. had counted "one" every second they were alive?

They would still be short a good many digits of the highest total obtainable from the new, card-programmed electronic calculator in Ontario Hydro's recently-organized Computing Centre.

Yet this electronic marvel, with its myriad of blinking lights and miles of tiny cable packed into three relatively small connected machines (two about equal to medium-size electric refrigerators, and the other on a par with a large electric stove), is capable of 200 to 300 operations per second.

The Computing Centre is only about two decades away from the original "accounting department" of Ontario Hydro, the 30-foot slide rule, commonly referred to as the "Squirrel Cage," which was used for years to compute the municipal power bills. Yet, in terms of possibilities, the card-programmed electronic calculator, is millions of light-years away from the old intricately-numbered "cylinder within a cylinder."

Typical of the constant attention Ontario Hydro pays the latest developments in the fields of applied science, the Computing Centre has been in operation since October, 1953. While much study had gone into setting up the Centre, it took

almost a year to secure delivery of the machines after they were ordered, as demand has greatly exceeded production so far.

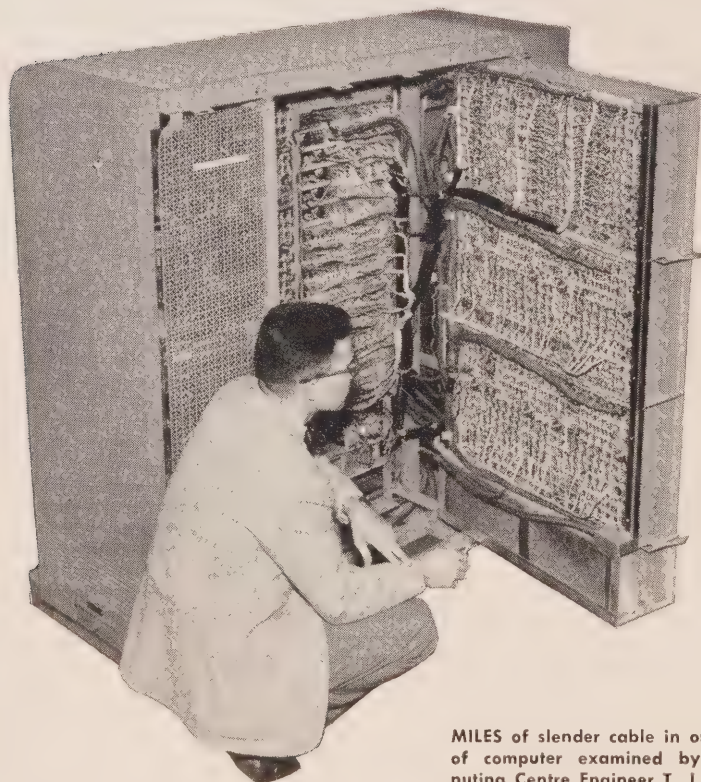
## **St. Lawrence Problem**

When "interviewed," the calculator had no time for chitchat. It was very busy working out a survey job on the St. Lawrence River for the Engineering Division, as a preliminary phase of Hydro's participation in the projected St. Lawrence River Seaway and Power development. Its tiny lights were flickering almost alarmingly, while its sensitive "fingers" energetically recorded answers on a wide roll of paper from cards inserted by the operator.

Patting the "monster" affectionately L. J. Lacey, B.Sc., mathematician-in-charge of the Computing Centre, explained it was accomplishing as much work in 45 seconds as an ordinary human could with a desk calculator in a half hour. If the person were using only pen and pencil, the same job would take about an hour-and-one-half.

In this particular operation, the electronic calculator was finding survey points in a 250,000-foot section (more than 47 miles) of the St. Lawrence River working out the distance and bearing between two points. There were almost 300 of these calculations needed, and the machine was performing in less than working week what would have taken man with pen and pencil some three working months.

As many as 700 cards can be stacked into the calculator at one time. The device scans these and records their contents at the rate of 150 a minute. If the operator happens to misplace a card, the machine scans it, refuses to accept because it does not offer the correct serial number, and stops. The calculator will not start again until the cards have been correctly inserted, and the operator



**MILES of slender cable in one unit  
of computer examined by Com-  
puting Centre Engineer T. J. Hogg.**





HYDRO'S Computing Centre consists of three units which make up the card-programmed electronic calculator. Phyllis Woods, machine operator, left, is putting the intricate device through its paces while L. J. Lacey, mathematician-in-charge, checks performance.

sets it in operation by pushing a button. Experience in the Centre has shown that the machine operates with astonishing reliability. In fact, the Centre reported for December, 1953, that "breakdown time during the month has been negligible."

### Intricate Calculations

Since the Computing Centre started operations, the electrically-operated computer has performed intricate mathematical calculations for almost every division of the Commission. Particular studies have included such varied tasks as: determining generation schedules for the Southern Ontario System; comparing financial statements; tracing surges in the power canal of the Sir Adam Beck-Niagara Generating Station No. 1; solving, for 36 sets of initial circumstances, the wind velocities at which a transmission line will gallop under varying conditions; coding on punched cards from records of the past six years, the rate of recurrence of lightning strikes in given areas of Ontario, for purposes of analysis; making a complete record on punched cards of meteorological observations taken at the Canadian Meteorological Observatory at Malton Airport near Toronto from 1951 to 1953; establishing bases for

predicting water supplies using records of average monthly precipitation and temperature prepared by Ontario weather stations, and calculating the optimum size of a proposed channel between Lake St. Joseph and Lac Seul to provide additional water for Hydro's new Manitou Generating Station on the English River based on studies of water flows in the past 40 years.

Since it began operation six months ago, the Computing Centre has undertaken over 30 essentially different problems for various departments of the Commission. Many of these problems are of a constantly recurring nature. Thus the data already assembled will be of considerable assistance in solving future problems.

### Study Committee

To keep abreast and even ahead of the rapidly-changing office procedures, with particular relation to the application of large-scale electronic computers to all aspects of Commission accounting and recording, Ontario Hydro has appointed a committee of study, headed by Dr. W. P. Dobson, Research Consultant. This committee includes Mr. Lacey, M. G. Fiegehen, Supply Division; R. J. Boorman, Planning Division; Walter Preston,



A. H. McBride, one of Hydro's seven original employees, examines slide rule he used during his entire Commission career. In front is the "Squirrel Cage" — a forerunner of the present electronic calculators — which was once used to compute municipal power bills.

Chief Statistician: D. N. Duffy, Consumer Service Division; L. J. Simpson, Personnel; F. P. Thomas, Comptroller's Division, and Hugh McFarlane, Engineering Division.

Of particular interest to the Committee are high-speed digital computers, with large-memory capacities, even into the billions. Also required is speed of access to this memory.

It is interesting to note that the Computing Centre employs a staff of only five. Their work would require six times that number of employees performing the same function manually. Yet despite the introduction of the latest in electrical equipment in the Computing Centre and other departments, it has not resulted in one layoff. All personnel thus far affected by the changes have been absorbed into other departments of the Commission. □





ONTARIO HYDRO Singers Male Quartette comprises, left to right, Joseph Kirby, second bass; Norman Barrett, first bass; John Gifford, and Erwin Powrie, second and first tenor, respectively.

# HYDRO'S SINGING AMBASSADORS

**Excellent choral arrangements of Ontario**

**Hydro choir winning wide public acclaim**



SINGING GROUP, including, left to right, Rae Heard, accompanist; Jack Edgar, Pat Weinert, Joyce Wiltshire, President Gordon Dunn, with Helen Nahiarny, Mary Myskiw, and Phyllis McFadden standing on steps, and Norman Forbes looking from the bus windows, arrive for one of the numerous concerts they have given in various places throughout Ontario.

**F**OR a two-year-old, it is certainly in good voice!

The "it," in this case, means the 30-member group known as the Ontario Hydro Singers — an affiliate of the now venerable Ontario Hydro-Electric Club. Generally called the Hydro Club, this organization sponsors a wide variety of social, cultural, hobbycraft, and welfare activities for Commission staff members in their leisure hours.

Organized in March, 1952, the Ontario Hydro Singers, under the able direction of John Boorman, have given 12 concerts, at such varied places as hospitals, old people's homes, lodges, churches, home and school associations, and service clubs. Concerts presented by the group have helped raise money for Boy Scout work, and for other purposes at King City, Gormley, Richmond Hill and Weston.

Perhaps the most ambitious efforts were last year's Coronation Concert at Harbord Collegiate, Toronto, under the auspices of the Hydro Club, and the recent choral presentation at Centra





JOHN BOORMAN directs 30-voice choir at Barrie in aid of church building fund.

United Church, Barrie, in aid of the church building fund, which was enthusiastically applauded by some 500 Barrie citizens.

Self-supporting, these singing ambassadors have been spreading the name and fame of Ontario Hydro without any thought of material reward. The choir has purchased over \$700 worth of musical scores through nominal weekly contributions from its members, plus modest fees accepted only where charity is not involved. Granted a total of \$200 by the Hydro Club, at various times since its inception, the choir has already repaid 150 of this amount.

Perhaps the aims and objects of the choir are best summed up in the program notes provided by Past President Frank Barnhill at the Barrie concert, when he said: "Our group are all members of the staff of Ontario Hydro, from almost every department in Hydro. One thing we all have in common: our real love of singing. Our group is entirely self-supporting, and all our activities are carried on after our regular hours of duty."

#### Favorable Impression

Indicative of the favorable impression they have created in their public appearances of the past year and more, was a letter received by Hydro Chairman Robert H. Saunders from a United Church of Canada minister after the group had presented a concert in his church. The letter, in part, read:

"The leaders are to be commended for their choice of selections to be sung within a church . . . The choir members behaved themselves like good guests."

After the Barrie concert, R. E. Parker, President of the Central United Church Choir, wrote Mr. Saunders as follows:

" . . . This group of Ontario Hydro employees from Toronto presented a very enjoyable concert and donated their services to do so in a most public-spirited manner, and we felt that a word of congratulation was due them and you for the quality of staff which you employ."

#### Newspaper Acclaim

Further illustrating the success of the

Barrie concert, and the popular acclaim which the choir has been winning in recent months, is the following review which appeared in the Barrie *Examiner* following the concert referred to above:

"The British musical heritage of several members of the Ontario Hydro Singers and of their founder and conductor, John Boorman, was evident throughout their choice of program for Wednesday evening's concert at Central United Church in aid of the new church building fund.

"Brought to town under the auspices of the church choir, the mixed choral group of 30 voices presented an excellent concert to a large and appreciative audience. Close to 500 people crowded the main church auditorium for the event, and enjoyed a program of varied choral arrangements for several vocal combinations. The melodic and familiar numbers, many of them drawn from English and Welsh folk airs, alternately featured the full choir of 16 male voices and 14 female voices in four-part vocal

(Continued on page 19)

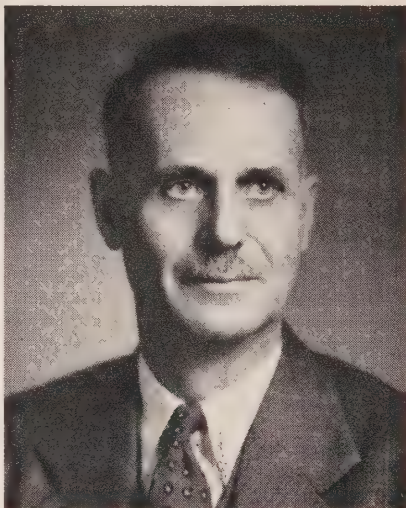


# "A Tremendous Decision"

*The following is the text of a message sent from New York on the occasion of the favorable decision of the United States Supreme Court on June 7, permitting work to get under way on the long-delayed power project.*

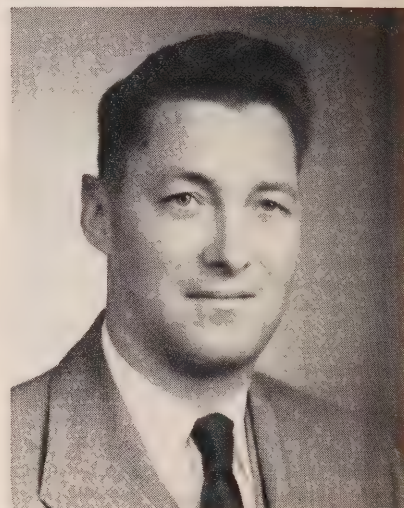
WITHOUT question the happiest man on the North American continent, if not in the world, is Robert H. Saunders, Chairman of Ontario Hydro. Mr. Saunders, in New York for the purpose of attending a joint meeting of the Ontario Hydro Commission and the Power Authority of the State of New York—a meeting arranged in anticipation of a final decision of the United States Supreme Court—expressed great joy at the wonderful news which came from Washington. He said, "This is actually a tremendous decision and of the greatest importance to the economic life of Ontario and Canada. We have stated on so many occasions that the St. Lawrence Seaway would not be economically sound without the power development and for this reason the commencement of construction of the Seaway has depended upon the decision of the power project. Now the construction of both can proceed".

Commenting further on the news, Mr. Saunders said, "Much has been said by those who know best about the tremendous benefits that will come to both Canada and the U.S. from the Seaway. As far as the power development is concerned it will enable our Commission to continue serving the people of Ontario with an abundance of electrical energy at low cost. Compared with steam generation, which appears to be the only alternative to the St. Lawrence, it will save



GORDON MITCHELL

the power users of Ontario some \$25 to \$30 millions each year. This, of course, is tremendous but it is factual. Upon receipt of the wonderful news to-day my immediate reaction was one of gratitude, gratitude to all those who co-operated in bringing the wonderful conclusion to the protracted negotiations. I am very sensitive to the contribution that has been made by the President of the United States, State and Justice Department, of the Federal Power Commission and, of course, of the Power Authority of the State of New York. But as a Canadian, I am extremely proud of the part played by the Hon. Leslie M. Frost, Ontario's Prime Minister, by the Rt. Hon. Louis St. Laurent, Prime Minister of Canada, and by the Rt. Hon. C. D. Howe, Minister of Trade and Commerce and Defence Production, the Hon. Lester B. Pearson, Secretary of State for External Affairs and the Hon. Lionel Chevrier, Minister



WILLIAM HOGG

of Transport, Ontario and Ottawa co-operated in a magnificent way and the news to-day is very tangible evidence of the beneficial results that can come through co-operation between the Province and the Government of Canada. I am sending wires immediately to each of these gentlemen expressing my own personal thanks, the appreciation of our Commission and of the power users of Ontario. Without the co-operative attitude displayed by these men we would not have the wonderful decision which has just been announced. I recall the statement made some months ago by the Rt. Hon. Louis St. Laurent when he very kindly referred to my activities in connection with the St. Lawrence development. He said 'and he (Bob Saunders) would be the first to admit that if he had not the forceful and very assiduous and constant co-operation of the Canadian government no one would be saying the



their achievement is in prospect at this time.' I can say to Mr. St. Laurent that I agree with that statement made at that time and most assuredly do to-day.

"Looking forward to this decision, we at Ontario Hydro have tried to prevent any unnecessary waste of time. Over the years we have spent on the St. Lawrence some two and one-half million dollars. The decision to-day, of course, justifies this expenditure. There are on the site some 150 Hydro men working together with 35 from the Department of Transport. Present cost of construction would indicate that the project will cost Hydro somewhere around three hundred to three hundred and ten million dollars; a definite statement will be made in the near future. The decision also enables us to move some of our top men to the site.

Because of the progress made on the Niagara project, we are very fortunate in having available for the St. Lawrence project Mr. Gordon Mitchell. Mr. Mitchell is presently Project Manager at the tremendous Niagara development and will now become Director of the St. Lawrence Hydro project. Mr. William Hogg, presently at Niagara, will become Hydro's St. Lawrence Project Field Engineer. Mr. William Fraser will replace Mr. Mitchell as Project Manager at Niagara. Mr. Mitchell will probably move to the St. Lawrence sometime this summer.

"Incidentally, we are rather hopeful that before the end of this month we shall be inviting tenders for the cofferdam at the powerhouse site."

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## JOINT STATEMENT BY NYSPA CHAIRMAN ROBERT MOSES AND MR. SAUNDERS

THE POWER Authority of the State of New York held a meeting on June 7 following the decision of the United States Supreme Court which clears the way for the beginning of construction of the St. Lawrence power development.

After this meeting there was a joint meeting with The Hydro-Electric Power Commission of Ontario. All the Trustees of The Power Authority of the State of New York were present, including Robert Moses, Chairman, Hickman Powell, Vice-Chairman, John E. Burton, Edward H. Chase, and Wyman Bascom. The staff executive were also present including William S. Chapin, General Manager; Thomas F. Moore, Jr., General Counsel; J. Burch McMorran, Chief Engineer, Asa George, Engineer; Geo. Spargo, Financial Adviser; Smith Johnson.

The following representatives of the Ontario Hydro Commission were present: Robert H. Saunders, Chairman; George H. Challies, 1st Vice-Chairman; W. Ross Strike, 2nd Vice-Chairman; Dr. Richard L. Hearn, General Manager and Chief Engineer; Dr. Otto Holden, Assistant General Manager—Engineering; A. W. Manby, Assistant General Manager—Administration.

A joint schedule of rapid construction

was agreed upon. The objective is to complete the power development within 5 years, with actual generation and sale of power beginning in 4 years. It is anticipated that construction on the cofferdam will begin early this summer.

The financing of the Canadian portion presents no difficulties. The tentative proposal for financing by the Power Authority of the State of New York is based upon a substantial loan from banks anticipating the future sale of definitive bonds. The financial report of the Power Authority of the State of New York, including engineering data, will be available for public distribution shortly after the first of July. Further details of this financing will be furnished shortly after this date.

Ontario and New York have long awaited this day. This project has been seriously considered for almost half a century. Since the International Joint Commission opened the way in 1952, we have moved forward with our plans so as to be ready for this momentous day when the Supreme Court would remove the last possible question of the project. We are ready to proceed and actual construction can start in a very few weeks.



(Continued on page 14)



## "A TREMENDOUS DECISION" (Continued from page 13)

Realization of plans for the St. Lawrence Seaway and Power project was made possible only by the unstinted and unselfish endeavors of a number of far-sighted Canadian and U.S. Citizens. Many of those who devoted so much of their time and talents are seen in the accompanying photographs, some taken at crucial stages of the long-drawn period of conferences and negotiations which preceded the final decision of the U.S. Supreme Court in favor of United States participation in the project. Mr. Saunders, who was in New York

when the great news arrived, immediately sent telegrams to the Rt. Hon. Louis S. St. Laurent, Prime Minister of Canada, and to the Hon. Leslie M. Frost, Prime Minister of Ontario, expressing his personal thanks, and that of Ontario Hydro, for the co-operation between the province and the Government of Canada which contributed so much to the happy outcome.



DECEMBER 3, 1951, was a memorable day in the history of the St. Lawrence project. On that day Canada made available to Ontario all power rights on the Canadian side of the International Rapids section of the St. Lawrence. Mr. St. Laurent is shown signing the agreement, with Ontario's Prime Minister, Hon. Leslie Frost, seated, left, and Hon. Lionel Chevrier, former Canadian Minister of Transport, right. Standing are Chairman Robert H. Saunders (left), and 1st Vice-Chairman Hon. George H. Challies.

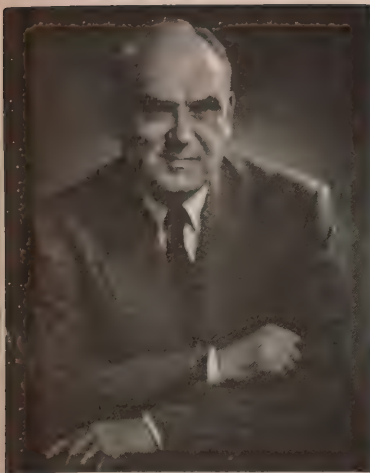
CHAIRMAN Saunders called at the White House last year and personally appealed to President Dwight D. Eisenhower for early U.S. action on the proposed international hydro-electric development. The President and Mr. Saunders are pictured here on the occasion of their first meeting during World War II, when as Mayor of Ontario's capital, Mr. Saunders officially welcomed General Eisenhower, Commander-in-Chief of the Allied Forces in Europe, during a goodwill visit to Toronto.



PLANNING started a few days after New York State Power Authority was named as U.S. agency to work with Ontario Hydro on the power project. This photo shows the first conference in New York City in August, 1953. Front row, l. to r.: Franklin J. Leerburger, Power Authority Consulting Engineer; Chairman Saunders, John Burton, former Chairman, Power Authority; Dr. Otto Holden, Assistant General Manager—Engineering, and Bruce Black, Senior Project Engineer, Ontario Hydro. Back row, l. to r.: Charles M. Goetz, Chief Counsel; Dr. Constantine Belousow, and Asa George, Authority officials.







AS Minister of Trade and Commerce and Minister of Defence Production, Rt. Hon. C. D. Howe played a leading role in events leading to culmination of plans for the Seaway and Power Project.



HON. LESTER B. PEARSON, Canada's Secretary of State for External Affairs, performed valuable service in expediting international negotiations thus helping to make the development a reality.



LOOKING to the future are the inland cities whose portals will be opened to 85 percent of the world's shipping on completion of the Seaway. Here Chairman Saunders discusses plans for harbor extensions with Harry C. Brockel (right), Port Director of the City of Milwaukee, on a recent visit to that city.



IN line with its policy of keeping the public informed on electrical developments in Ontario, Hydro has had on display at the Canadian National Exhibition in Toronto for the past three years a scale model of the proposed Seaway and Power project. In this photo Mr. Saunders is explaining features of the model to General George C. Marshall, at that time U.S. Secretary of Defence, who officially opened the 1951 "EX." R. C. Berkinshaw, extreme left, C.N.E. President at that time; former Canadian Defence Minister Brooke Claxton, and Hon. Stanley Woodward, U.S. Ambassador to Canada at that time (to the right of General Marshall) accompanied the General during his visit.

CHAIRMAN SAUNDERS (right), "the happiest man on the North American continent," is seen exchanging felicitations with Robert Moses, Chairman of the New York State Authority, following receipt of the news of the decision of the U.S. Supreme Court.

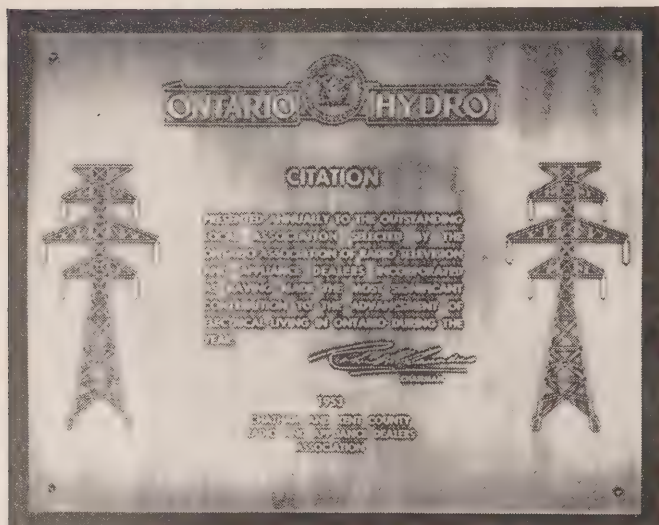


REPRESENTATIVES of both organizations marked final "green light" on June 7 this year, at another conference in New York. Front row, l. to r.: A. W. Manby, Hydro; J. B. McMoran, Power Authority; Dr. Otto Holden, Hydro; John E. Burton, Power Authority; Power Authority Chairman Robert Moses and Hydro Chairman Saunders; Hickman Powell, Power Authority; Hon. George H. Challies, and Dr. Richard L. Hearn, Ontario Hydro. Back row, l. to r., Thomas F. Moore Jr., Smith Johnson, Asa George, Wyman S. Bascom, and Edward H. Case, Authority officials; W. Ross Strike, Hydro, and Col. W. S. Chapin, Power Authority.





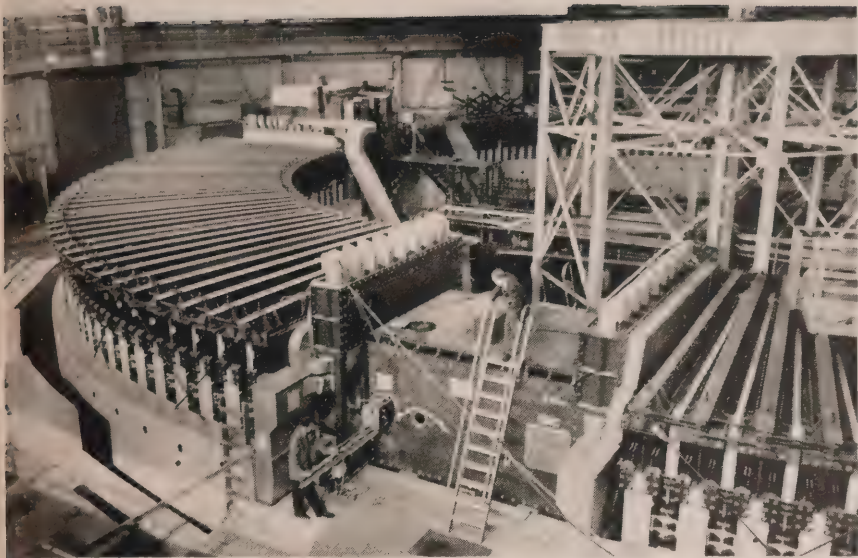
# FOTO-NEWS



**HYDRO AWARD**— James A. Blay, Director of Information, Ontario Hydro, shows the plaque donated by Ontario Hydro to the community association making the most significant contribution of the year to the advancement of electrical living, as a member of the Ontario Association of Radio, Television and Appliance Dealers. The first of these awards went to the Chatham and Kent County Radio and Appliance Dealers Association for its effective work in 1953 at the annual O.A.R.T.A.D. Banquet, held in May this year at the Royal York Hotel, with the President of the Chatham and Kent County Association, W. Alan Shillington, Blenheim, accepting the award from Mr. Blay. Gordon Sharpe, Chatham Public Utilities Commission, has been Secretary of the winning association since its inception approximately 11 years ago. Left to right are: Mr. Blay; J. A. Pardie, President of O.A.R.T.A.D.; Wilf. Hodgins, O.A.R.T.A.D.'s Secretary-manager and Mr. Shillington. The wording on the plaque is as follows: "Ontario Hydro Citation—presented annually to the outstanding local association, selected by the Ontario Association of Radio, Television and Appliance Dealers, Inc., as having made the most significant contribution to the advancement of electrical living in Ontario during the year—Signed, Robert H. Saunders, Chairman."





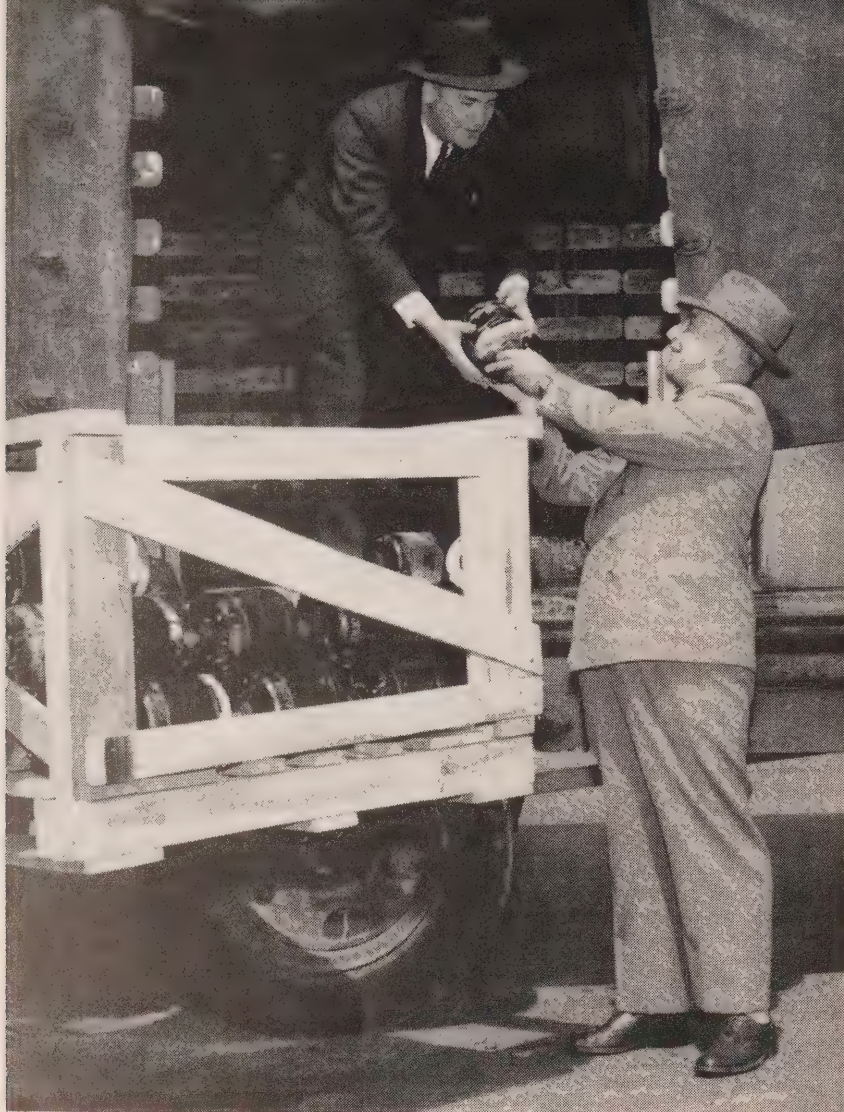



**ATOM SMASHER**—General view of newly-completed Bevatron, at the University of California Radiation Laboratory, Berkeley, Calif., which already has produced energies of five billion volts—more than twice that of its nearest rival, the Cosmotron at Brookhaven, L.I. Technicians are shown at the target area of the huge circular instrument which was shown to newsmen recently, for the first time. (Wide World Photo). A few days ago Hydro Chairman Robert H. Saunders said the Commission would have atomic-generated power available within three years if necessary. Of special significance was Mr. Saunders' recent visit to an important atomic power experimental station at Sellafield, Cumberland, on the northwest coast of England, during a 35-day trip to Europe. (At present Ontario Hydro is engaged in studies in conjunction with Atomic Energy of Canada Limited to probe the possibilities of developing a nuclear reactor for generation of electricity).

**CANADA ON DISPLAY**—Another visit on Mr. Saunders' itinerary during his recent European trip referred to above, was his inspection of the numerous Canadian industrial exhibits at the Hannover (Germany) Light and Heavy Industries Fair. The accompanying photo shows, left to right, Ian McDonald, Assistant Commercial Secretary, and Mrs. H. Tyrasha, Secretary, Canadian Embassy, Bonn, Germany; Mr. Saunders, and R. H. Stapleford, Ontario Government Trade and Industrial Commissioner in Great Britain, standing in front of the Canadian booth at the fair.







 **H. H. LEEMING**, Director of Frequency Standardization, right, helps **R. C. McNeil**, C.E.M.A., to load salvaged motors on to truck.

of the Ontario Department of Education, was held in the Leaside plant of Sangamo Company Ltd. on July 9 and 10.

### Teacher "Pupils"

The Wagner Electric Division of the Sangamo Company, Canadian Westinghouse Company Ltd., and Canadian General Electric Company engineers and technicians act as instructors and demonstrators to 50 teachers, who re-wind the motors to Ontario Hydro specifications for 60-cycle operation.

These "teacher-pupils", who volunteer for this short course and pay their own personal expenses, generally represent secondary schools with agricultural and shop work classes, as well as schools which devote 12 hours or more per week instruction in electrical subjects for students, in most cases, with a farm or rural background.

In fact, Ford Murphy, Wagner Electric Division, who is Chairman of the course sub-committee, states the teachers come principally from schools having a preponderance of rural students, and one of the main objects of the two-day course is to create among both teachers and pupils a greater interest in electric motors. In this way it is anticipated that greater operational efficiency will be obtained from motors and farm electrical equipment generally, as well as greater electrification of farms which, it is anticipated, will lead both to a saving of labor and increased agricultural production.

One expert in agricultural engineering came from the Ontario Agricultural College, Guelph; the Kemptville Agricultural College, and the Ridgeway Agricultural School and Experiment Station.

The teachers are instructed in the maintenance, care, use and application of motors, while film displays, lecture demonstrations, and panel discussions supplement the lectures.

### Safe Wiring

The motors themselves are featured and emphasis given to the necessity of adequate wiring for the safe and efficient operation of farm equipment.

The 50 motors donated by Ontario Hydro, after having been re-wound during the two-day course, are presented to the teachers, who will use them in their own schools for demonstration purposes.—by *Frank C. Wood*.

# School for Teachers

**Ontario Hydro cooperates with C.E.M.A. committee in novel plan to encourage better use of electricity in rural areas**

**O**NTARIO HYDRO is co-operating with a plan of the Rural Electrification Committee of the Canadian Electrical Manufacturers' Association to encourage better use of electricity on the farm.

This co-operation has taken the form of a Commission gift of 50 salvaged ¼-horsepower, 25-cycle, 1,425 r.p.m. motors. These motors were acquired by Hydro in the course of the frequency

standardization program, and normally the motors would have been re-wound for 60-cycle operation in Hydro's own motor re-wind shop. The motors were stripped of their 25-cycle coils and then formally presented to R. Campbell McNeil, Manager of C.E.M.A.'s Farm Electrification Bureau, by Frequency Standardization Director H. H. Leeming.

C.E.M.A.'s school, which has the approval of the Industrial Arts Division



## HYDRO'S SINGING AMBASSADORS

(Continued from page 11)

numbers, and a male chorus, a male quartet, and an excellent tenor soloist, Erwin Powrie.

"The harmonious blending of the voices and the variety of the program were to the credit of the group, their conductor, and accompanist, Rae Heard. All members of the Ontario Hydro staff, they are from almost every department in the Hydro and carry on all their activities after their regular hours of duty. The choir personnel includes several newcomers to the country, mostly Britishers, with one singer coming from Sweden and another from the Netherlands.

### Solo Appearance

"An outstanding moment on the concert program was the solo appearance of Erwin Powrie, first tenor in the male quartet. His fine voice was heard in two vocal arrangements by Dr. Healey Willan, 'The Little Red Lark,' and 'Love Will Find Out the Way,' and Michael Head's 'When I Think Upon the Maidens,' all particularly suited to his remarkably true and lyric voice.

"Mr. Powrie was just as outstanding in his appearance with the choir's male quartet, whose other members were John Gifford, second tenor; Norman Barrett, first bass, and Joe Kirby, second bass. The quartet's selections were 'Evening Pastorale,' by Shaw, and 'Lovely Night,' by Chwatal.

"The choir's opening number, the familiar 'Come to the Fair,' by Easthope Martin, was among one of its most appealing program selections. One of the favorite groups of the evening for the audience consisted of several old English, Welsh and Hebridean airs, opening with 'Early One Morning,' and the wild, sad cadences of the lovely Eriskay Love Lilt.' The fine Welsh air, 'All Through the Night,' was followed by the merry English air, 'May Day Carol,' beautifully harmonized and arranged by Deems Taylor.

"On the second half of the program the men's voices were heard in a muted, capella arrangement of the beautiful allaby, 'Blake's Cradle Song.'

### Full Choir

"The voices of the full choir were ever more effective than in the

soft singing of 'Evening Prayer' from Humperdinck's opera 'Hansel and Gretel,' and Sullivan's 'The Long Day Closes.'

"The opening group of the program had a spring theme, included a very old English air, 'Gossip Joan,' followed by Oley Speaks' beautiful 'Morning.'

"The women's voices were heard in a joyful part song, 'A Madrigal in May,' and the lovely Brahms' 'Lullaby.'

"One of the rollicking groups on the program by the full choir included a particularly amusing arrangement of 'Old King Cole,' along with other nursery rhymes. Received enthusiastically by the audience, this group was of a high calibre musically, also, opening with the rousing 'The Noble Duke of York,' and ending with a setting in the manner of Handel of 'Old Mother Hubbard' to music. In contrast was Handel's own serene and lovely 'Where'er You Walk,' in which the men and women of the choir joined their voices most effectively.

"'Rolling Down to Rio,' Vaughan Williams' meditative and tranquil setting of 'Linden Lea' and 'Sylvia,' were among the other full choir selections.

"A fantasia of sea songs, including selections from 'Pinafore' and other gay and familiar sea chanties, and 'The Song of the Jolly Roger' were among the selections of the men's choir, and 'Softly Fall the Shades' and an encore 'Think on Me,' were part of the choir's closing group.

"Frank Barnhill, a past president of the choir, introduced the numbers to the audience."

With praise such as this ringing in their ears, choir members are eagerly looking forward to future concerts, arrangements and bookings being handled by President Gordon Dunn. □

## HOUSE OF HEALING

(Continued from page 7)

then along to the "lift" shaft. An accurately-timed system of pickup arms unhesitatingly lifts each tray from the conveyor belt and carries it to the upper floors where an attendant lifts it off. In this way, all the patients are served within three quarters of an hour with piping-hot food.

Roughly, one-fifth of the food has to be prepared under the supervision of a

Rabbi in a separate kitchen — off to one corner. To conform with the Koshier dietary laws, separate dining services are kept for both meat and milk, with a corresponding separate cutlery pattern for each food. Even the trays have a distinct red color.

Cooking odors are at a minimum as the kitchen area is under a partial vacuum. All the equipment is stainless steel.

Mount Sinai is the first larger hospital in this part of the country to utilize radiant heating.

Unlike most domestic and some commercial installations in Canada, where radiant heating has been confined mostly to floors, the Mount Sinai installation employs ceiling panels, except, on the ground floor.

In the case of Mount Sinai, ceiling heating was particularly adaptable. The patient's comfort was of prime concern. If pipes had been embedded in the floor, the radiated heat would be kept from the patient by the insulation formed by mattress. If temperature was raised sufficiently to overcome this obstacle, the floor temperature would be too high, and objectionable to nurses and other staff. To obtain adequate and comfortable room temperature with floor heating, a surface temperature of from 85 to 90 degrees must be retained — too hot for comfortable contact. Mount Sinai's ceiling panel installation is designed to make both patient and nurse comfortable.

The consulting engineer refrained from using automatic, individual controls because of cost, but the system is designed in such a way that each exposure, north, south, east and west, is controlled as a separate unit of the system.

Heat travels in the line of least resistance, thus most will go down to the patient in the room in which the heating panel is installed, but some will seep through to heat floors in room above.

The name bestowed on this institution is particularly historic as pointed out by Rabbi Abraham L. Feinberg in his invocation at the opening ceremonies: "Mount Sinai in the Bible symbolized the revelation of God's moral law as the path to spiritual health; Mount Sinai Hospital is a witness to the quest and use of scientific law for physical wellbeing." □



# GOING UP

**New Application of Hydro**

**Power Foreseen As Autotronic**

**Elevator Demonstrated**



**A**N electronic elevator system which programs its own operation to conform with the flow of traffic was exhibited in Toronto recently by the Otis Elevator Co. Ltd.

Controlled by an "electronic brain" panel, the travel of the elevator car is supervised through all six major traffic patterns—Up-Peak; Heavier-Up; Balanced Heavier-Down, Down-Peak, and Night.

Once the traffic pattern is established, the electronically-operated elevator car adjusts to such things as surges; measures passenger waiting time; prevents overlong waits, and even picks up "the forgotten man," who might have been overlooked in the 5 p.m. rush.

Operating without attendants, the autotronic elevator is equipped with floor push-buttons, and at each stop automatically opens and closes its doors, and proceeds to the next stop.

It has been found, according to Otis officials, that in office buildings, hotels and hospitals, the Up and Down traffic is about equal during a large part of a normal working day, while in large department stores, the Up-Down traffic is balanced most of the day. Thus, autotronically-controlled elevators can give steady Up-Down service without normal delays, and afford particular service during such periods as Christmas and Easter shopping, visiting hours at hospitals, conventions at hotels, and the peak hours of 9 a.m. and 5 p.m. in office buildings.

Here, in brief, is an illustration of the autotronic's operation during an average day:

Cars are automatically dispatched from both top and bottom floor terminals at regular and frequent intervals, and a car that has made a fast trip is never held back to wait for a slow car. Cars that are delayed enroute to their terminals can be passed by other cars without disrupting the schedule. Cars actually are *forced* automatically and electronically to make up for lost time. A late UP car, for instance, may be reversed before it reaches the top if there are no unanswered calls above it. A car, late arriving at a lower terminal, may have its waiting-time reduced.

## **Electronically Dispatched**

If a car is filled to capacity at a terminal before its waiting time is up, it can leave immediately, and another

"**BRAIN**" of new autotronic elevator system which can be operate without an attendant is explained to Miss Joyce Wright, Hamilton, by W. H. Bruns, electronics expert and inventor. Dial is used to flash signal to cars, placing them on one of the system's six main program:







**ELEVATORS** in the Head Offices of Canadian Bank of Commerce in Toronto travel 35 miles a day, the greatest distance in Canada. They also have highest "rise" in Canada.



**ELEVATOR** at Ontario Hydro's Abitibi Canyon Generating Station ranks among the most unique in Canada, being among few Canadian cars to operate on incline—the same angle as the Pyramids.

car will be dispatched electronically, ahead of time, from another terminal to take its place.

This balanced up-down program keeps the elevator cars active, and so evenly distributed that every floor gets frequent and regular attention. All without human aid: all completely automatic!

Thus, Hydro power will soon find another vital application in this latest electronic development, which is the product of many decades of experimentation and installation of vertical transportation systems.

It was just 100 years ago—in 1854—during New York's fabulous Crystal Palace exhibition of art and machinery, new inventions, and lavish musical numbers, that the world first saw a "safety elevator" in operation. A master-mechanic from a Yonkers bedstead factory, Elisha Graves Otis, demonstrated his safety elevator perfected just the year previous.

He rode his platform slowly up between two posts fitted with notched iron bars. The crowd below could see that the rope that raised the elevator was fastened to a steel wagon spring just under the crossbar above Otis' head. The spring was linked by a series of pivots to two bolts. Suddenly, when Otis was high over the heads of the crowd, he dramatically ordered the rope cut. The instant the rope parted, the spring was released and the bolts shot out and engaged the notches. The platform held firmly.

Thus was born the modern elevator industry, and from it sprang a new architectural era which produced vertical buildings called skyscrapers.

In the past century, as the industry developed, there has been a variety of novel and interesting elevator installations in Canada, which has about 16,500 elevators today.

#### Unique Hydro Elevator

In fact, Ontario Hydro operates one of the most unique systems, according to all reports. At its Abitibi Canyon Generating Station in Northeastern Ontario, the Commission uses one of the few elevators in Canada to operate on an incline.

The Abitibi elevator, which has a carrying capacity of three tons, provides transportation for freight and staff between the top of the main dam (maximum height, 290 feet), and the generating plant at the foot of the dam, as well as intermediate points.

The November, 1944 issue of this magazine described it in these words:

"This is no ordinary elevator. At first sight, it looks like an animal cage, and then, instead of moving up and down vertically, it travels on an angle that parallels the slope of the dam, which was constructed at the same angle as the Pyramids.

"When the elevator is in operation, red lights on box indicators on each floor illuminate the words: 'In Use.' When all is clear, one has only to push the manual control and the elevator clatters and clicks its way to the floor from which the signal is given. One of these controls is located on each landing and, of course, there is one in the elevator itself. To enter, one has first to lift a safety gate and then reach down to the elevator floor level and pull on a second gate which swings up at a sloping angle, and which has the appearance of an open venetian blind. This gate rolls back over the roof of the conveyance and one can enter. Before the elevator can be set in motion,

*(Continued on page 25)*



# ALONG HYDRO LINES



## Trafalgar Reduces Hydro Rates

A 12 percent reduction in Hydro rates, retroactive to April 1, was announced recently by Trafalgar Public Utilities Commission.

The former rate of 4.5 cents for the first 60 kilowatthours, in the case of the domestic customer, has been reduced to 3.8c. For the balance, the homeowner will pay 2c per kwhr., compared with the former rate of 2.3c.

Local industries will share the benefits with domestic customers. The plant operator will, in the future, pay 2.8 cents for the first 50 kwhrs., compared with the former rate of 3.2 cents per kwhr. For the next block of 50 kwhrs., the industrialist will pay 1.8 cents per kwhr., in contrast with his former rate of 2.1 cents. On all additional power, the rate will remain unchanged at .33c per kwhr.

Commercial power users will pay 3.3 cents for the first 100 kwhrs. under the new schedule, compared with their old rate of 3.9 cents. There will be no change in the rates for power used in excess of the first 100 kwhrs., which is 1.9 cents per kwhr.

## U.S. Association Honors Hydro's Medical Director

A distinguished United States medical organization recently conferred a high honor on Ontario Hydro's Medical Director, Dr. R. W. I. Urquhart. The Industrial Medical Association, of which Dr. Urquhart has been a member since 1951, designated him as a Fellow of the Association, on April 28 in Chicago, in recognition of his accomplishments in the field of industrial medicine. The I.M.A. is the foremost organization of its kind in the United States and its membership is composed of industrial physicians from virtually all the companies of that country. Approximately 60 Ontario doctors are members.

Dr. Urquhart, who joined the Commission's service in 1946, was born in Fort Qu'Appelle, Saskatchewan, and educated at Moose Jaw Collegiate and Toronto University where he successively gained the degrees of Bachelor of Arts (1920), Master of Arts (1921), Bachelor of Medicine (1924), and Doctor of Medicine, cum laude (1927). He became a lecturer in pathological chemistry in 1930, and later was instructor in health education and custodian of the Banting records. From 1942 to 1945 Dr. Urquhart was director of the University Health Service and assistant director, on a part-time basis, from 1945 to 1946. He has also published papers on the results of his research into experimental electric shock, industrial hygiene and kidney function.

During the First World War, Dr.



Dr. R. W. I. Urquhart

Urquhart served with the No. 14 Ambulance, C.A.M.C., from 1917 to 1918, and was Lieutenant-Colonel in command of medicine at No. 15 Canadian General Hospital from 1939 to 1942 during the Second World War.

Married in 1926 to Helen Christine MacKinnon, daughter of the late Neil Donald MacKinnon, he has one son and one daughter. He is a member of Toronto's York Club, the Arts and Letters Club, and is on the Executive of the Medical Alumni Association, the Health League of Canada, The Canadian Red Cross, and the Royal Life Saving Society. For recreation Dr. Urquhart turns to painting and photography.

## NEW ZEALAND TAPS STEAM FOR POWER

NEW Zealand is going ahead rapidly with plans for its first thermal power station, using natural underground steam. Ample resources have been confirmed in the past four years of tests, during which engineers have drilled 29 bores into the heart of the North Island's thermal region — the strange area of boiling mud pools, steam blowholes, geysers and hot lakes.

Based on studies of the 10 largest bores, four with a diameter of 8 inches and six of 6 inches, the engineers in charge estimate that sufficient steam to produce 90,000 kilowatts of electricity can be tapped.

The bores have gone down to varying depths, some as deep as 3,000 feet. Tests have shown that the pressure of steam emitted does not diminish with time. Some, in fact, have become hotter and fiercer after prolonged operation.

When first blown, the bores hurl steam hundreds of feet into the air, with an ear-splitting roar. Later the steam is controlled and diverted through heavy steel pipes fitted with valves and gauges to measure the pressure.



## Waterloo Installs Heater Controls

Installation of flat-rate water heater controls to permit short, daily power cuts during daily peak periods, is to be undertaken by Waterloo Public Utilities Commission in its No. 3 substation area. Cost of the controls will be about \$10,000. However, it is estimated that savings to the local commission will make it possible to make up the cost in about three years.

The equipment will cut off the flat rate heaters for about one-half hour during the noon-hour peak and will, the local commissioners feel, involve little or no inconvenience to the 217 customers in the area.

By cutting the heater load during peak periods, the peak load will be reduced, resulting in major operating economies. At a recent meeting, the Waterloo commission also voted to purchase "cathodic protection" equipment for the new 500,000-gallon water tank to be erected in the area, which will prevent water corrosion, as well as curtail paint costs and minimizing service interruptions.



WILLIAM FRASER

### Project Manager of Sir Adam Beck-Niagara G.S. No. 2

William L. Fraser has been appointed Project Manager of Ontario Hydro's Sir Adam Beck-Niagara G.S. No. 2 project. Mr. Fraser first joined the Commission in 1947 as Project Manager for the



## BRIGHTER LIGHTS FOR CALLANDER

**C**ALLANDER will have a brighter look this summer thanks to the installation of more powerful street lights. Along Callander's streets, modern fixtures will replace the older type. In addition to the 72 lights being changed, eight will be installed to increase illumination of that community's thoroughfares. Callander's Reeve Leonard Wookey is lending a hand to linemen in the installation of the new lamps. The group includes Thomas Saville, Reeve Wookey, William Stewart, and Hydro's North Bay Area Manager, C. E. Dillon, who is holding one of the outmoded "flare-type" lamps.

Chenau development on the Ottawa River, and continued in that post until his appointment to Niagara in January, 1951, as Field Project Engineer. His predecessor as Project Manager at the Sir Adam Beck-Niagara G.S. No. 2 project, Gordon Mitchell, has been appointed Director of the St. Lawrence Hydro undertaking.

Born in 1894, Mr. Fraser graduated from Dalhousie University with a B.A. degree in 1915, and from McGill Uni-

versity with a B.Sc. degree in Civil Engineering in 1917. Following service with the Royal Canadian Engineers in the First World War, he was employed in a wide range of engineering capacities, including that of designing engineer with the Shawinigan Water and Power Company from 1926 to 1929. Before joining Ontario Hydro in 1947, Mr. Fraser was District Engineer on the staff of the Department of National Defence Naval Service.



## HYDRO APPOINTS COORDINATING OFFICER

**I**N ORDER to assist the A.M.E.U. Standards Committee to develop and adopt standards for municipal design, construction and maintenance, M. J. McHenry, Consultant, Consumer Service Division, has been appointed Coordinating Officer to work on behalf of the Commission with the A.M.E.U., and to act as liaison between the A.M.E.U. and the Commission staff. Announcing this appointment recently, Dr. Richard L. Hearn, General Manager and Chief Engineer, stressed the importance to both the municipal systems and the Commission of the preparation of these standards.

### A.M.E.U. Standards Organization

Dr. Hearn said the A.M.E.U. Standards Committee would be the steering and co-relating Committee for the A.M.E.U., being responsible to the A.M.E.U. executive for the carrying on of all work on municipal standards including: Standards for System Design, Construction and Maintenance of: (a) Overhead Distribution Systems; (b) Street Lighting Systems; (c) Underground Systems; (d) System Design and Stations; (e) Joint Use of Lines and (f) C.S.A. Standards for System Equipment.

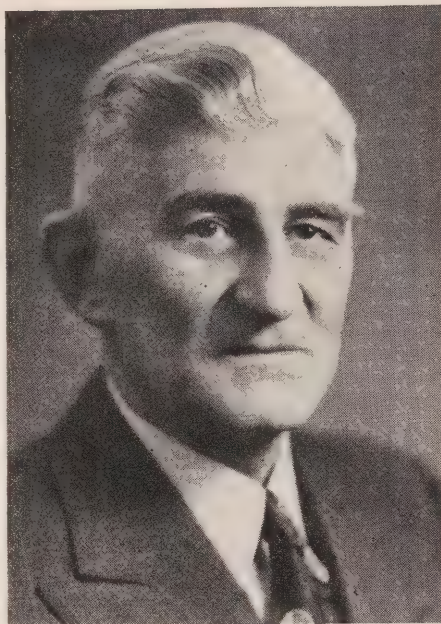
There will be three subcommittees reporting to the Coordinating Committee as follows: (1) Subcommittee - Standards (Overhead and Street Lighting); (2) Subcommittee - Standards (Underground), and (3) Subcommittee - Standards (System Design and Stations).

The chairmen of these subcommittees are members of the Coordinating Committee, and their committees will be assisted by members of the staff of appropriate departments of the H.E.P.C. They will be responsible for preparing all drafts of standards for the review and recommendation of the Coordinating Committees.

There will be three subcommittees in the preparation of standards material under their particular scope.

The Coordinating Committee will institute in the subcommittees any additional studies relating to system standards. It will coordinate the work of all subcommittees and review reports and recommended standards for submission to the A.M.E.U.

The Coordinating Officer will report



M. J. McHenry

to the Coordinating Committee, and act as liaison between the working committees and the Commission staff. He will be responsible for obtaining assistance as required, from time to time, from the engineers of the Commission for the various A.M.E.U. committees. He will assist the Coordinating Committee in obtaining information from outside bodies such as the C.E.A., the C.S.A., and other utilities, and in co-relating the Standard Committee's work to corresponding efforts by these outside organizations. He will be, ex-officio, a member of all Standards Committees, which are composed as follows:

Standards Coordinating Committee: N. A. Grandfield, Galt, Chairman; C. S. Phelps, Sarnia, Vice-Chairman; M. J. McHenry, H.E.P.C., Coordinating Officer; W. R. Mathieson, H.E.P.C., Secretary; Harry Hyde, Toronto; G. L. Lillie, Toronto; J. G. Sutherland, Hamilton; A. L. Furanna, London, and D. J. Gordon, H.E.P.C., Municipal Service Engineer.

Subcommittee - Standards (Overhead): G. L. Lillie, Toronto, Chairman; Ray Pfaff, St. Catharines, Vice-Chairman; John McDiarmid, Hamilton; Stanley Webster, Tillsonburg; E. W. Burbank, Toronto; W. D. Stalker, Simcoe; John Torrance, Etobicoke; T. J. Burgess, H.E.P.C.,

Line and Maintenance Engineer, Operations; A. E. Green, H.E.P.C., Dist. Engineer, Toronto Region; R. E. Jones, H.E.P.C., Distribution Engineer, and R. E. Treen, H.E.P.C., Joint Use Engineer.

Subcommittee - Standards (Underground): J. G. Sutherland, Hamilton, Chairman; J. A. Williamson, Niagara Falls, Vice-Chairman; A. W. Bromley, Kitchener; L. P. Forebear, Toronto; C. L. Leach, Chatham; H. B. Muckle, H.E.P.C., Dist. Engineering; F. B. Grahame, H.E.P.C., Dist. Engineer, West Central Region, and J. W. Simpson, H.E.P.C., Asst. to Line Engineer, Operations.

Subcommittee - Standards (Distribution, Design and Stations): A. L. Furanna, London, Chairman; H. A. Howard Thorold, Vice-Chairman; Robert Butter, Owen Sound; A. G. Stacey, Guelph; William Secord, Brantford; K. H. Anthony, Scarboro; Aaron Gusen, H.E.P.C., Planning Division; G. M. McHenry, H.E.P.C., Consumer Service Engineer, Western Region; H. P. Cadario, H.E.P.C., Stations Engineer and N. F. Seymour, H.E.P.C., Station Design Engineer.

### Port Arthur Expansion Reflects Progress

PORT ARTHUR'S growing population and industrial development is reflected in the recent approval by Ontario Hydro of an expenditure of approximately \$4,500,000 for extension and improvement of the distribution facilities.

The new lines will permit the distribution of additional supplies of power to meet the increased demand from the iron mining industries in the Port Arthur and Fort William district. At the same time they will improve service to customers generally.

### Improve Feeders At Port Hope

Ontario Hydro has approved an expenditure by the Port Hope Hydro-Electric Commission of \$7,500 to carry out feeder changes at the Shuter Street Municipal Station, it was announced recently by Chairman W. H. Walker. The program will be financed from available funds. Approval was also given for the assistance of Departments of Ontario Hydro in carrying out this work, costs so incurred to be charged to the local utility.



### New Strathroy Area Manager Feted

William Passmore, newly-appointed Manager of Hydro's Strathroy Operating Area, was recently honored at a testimonial dinner tendered by some 150 friends prior to his departure from Ridgetown. He was presented with a travelling bag by A. T. Warwick, Chairman of Ridgetown P.U.C.

Mr. Passmore joined Ontario Hydro in 1921, and with the exception of a short period, has been a member of the staff since then. He was born and raised in Ridgetown, and has been active in community service. Mayor George A. Mickle, and other officials, extended greetings from the town and paid high tribute to Mr. Passmore.

### Stratford Demand Hits New Peak

Peak power demand in the City of Stratford hit an all-time high last March. The Stratford Public Utility Commission reports that on March 1 at 11.24 a.m., the 20-minute peak hit 11,675.7 kilowatts. In 1953, the highest March peak was 10,416.7 kilowatts.

### Meaford Plans New P.U.C. Office

Meaford Public Utilities Commission has announced the purchase of a 58-foot lot in a central section of the town, as a site for a new office and stores building. Purchase of the site will be financed from available funds. Plans for the new building are not available as yet.

### Kingston P.U.C. To Spend \$31,458

Ontario Hydro has approved an expenditure by Kingston Public Utilities Commission of \$31,458 for alterations to the commission's local office building, and for additional switchgear at Kingston Municipal Station No. 3. This was announced recently by Chairman Col James Harris, who said the program would be financed from available funds.

## GOING UP

(Continued from page 21)

however, both gates must be closed again. It starts slowly at the first turn of the control and then suddenly accelerates its descent down the long sloping tunnel. From top to bottom it is a distance of 279 feet and, only once a year, one day in June, does the sun ever shine down this dark shaft."

Another unusual Canadian elevator system can be found at Table Rock, Niagara Falls, where the elevator shaft is drilled into a solid rock formation to a depth of about 260 feet, and operates in practically 100 percent humidity at all times. The elevator at Whirlpool Rapids, Niagara Falls, has its shaft bored through solid rock to a depth of about 235 feet with a short tunnel projecting out into the gorge. It was first planned to install this elevator on a free-standing shaft in the gorge with a connecting bridge to the gorge, but this idea was rejected by the International Joint Commission.

### Largest Installation

The largest unit installation in Canada is in the Royal York Hotel, Toronto. This elevator system consists of 10 high-speed passenger cars, seven high-speed service cars, two cars to carry food, and one car used exclusively by chefs who service the kitchens on three floors.

The elevator system in the Canadian Bank of Commerce, Toronto, can boast of a few superlatives too. Elevator cars in this building serve 35 floors, the highest elevator rise in any building in Canada. The Bank of Commerce elevators also hold the record for the greatest mileage per day—35 miles—of any elevator in Canada, while they share honors with the cars of the Sun Life Building in Montreal for speed, travelling 800 feet per minute. □

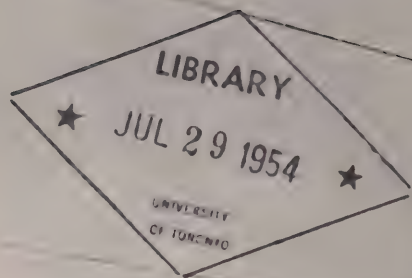
## HONOR RETIRING SUPERINTENDENT

R. W. PHILIP, Superintendent of the Milton Hydro-Electric Commission, retired recently after 30 years' service with the local utility. He is shown (right) at a retirement dinner in Milton, given in his honor by the town's Chamber of Commerce, with W. H. Dalton, Manager of Ontario Hydro's Information Department, Frequency Standardization, who was guest speaker for the occasion.

G. C. Riddell, who takes over the post left vacant by Mr. Philip's retirement, paid high tribute to the fine work done in the community by his predecessor and voiced the hope that he would remain a resident of Milton for many years to come. A fine cane was presented to the retiring superintendent by Bruce McNab, Chairman of the Milton Chamber of Commerce, as a token of the esteem with which he is regarded by those who have come in contact with him over his many years of faithful service.





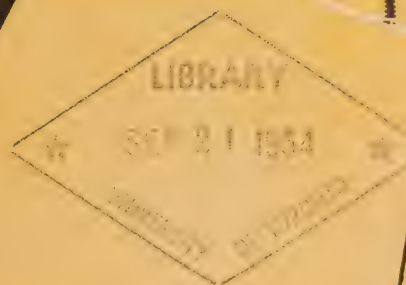




ONTARIO HYDRO

# *News*

JULY-AUGUST  
1954



MARCHING ON MANITO



# ONTARIO HYDRO

## News

JULY-AUGUST

Vol. 41

No. 7-8

Published by

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO  
620 UNIVERSITY AVENUE, TORONTO



### HYDRO'S MOST IMPORTANT MONTH

**M**ANY have described the past decade as the most colorful in Hydro history.

Certainly one has only to examine the events of August, 1954, to be convinced that Hydro is passing through one of the most important periods since its formation.

On August 10, 1954, for instance, the Commission launched construction of the long-awaited, 2,200,000-horsepower St. Lawrence Power Project (in cooperation with the U.S.-designated agency — the Power Authority of the State of New York) at joint, ground-breaking ceremonies at Massena, N.Y., and Cornwall, Ontario. Of particular significance was the fact that these ceremonies followed by little more than 60 days the decision of the United States Supreme Court in favor of the application of the New York Authority to participate in the project — heartening assurance of the vigor and tenacity of purpose of the partners! (Evidence of this vigor is found also in the fact that, already, Ontario Hydro has awarded a contract for construction of a project construction office at the powerhouse site near Cornwall, and tenders closed on August 24 for the cofferdams at the powerhouse site. The Power Authority, on its part, has named a contractor to carry out cofferdamming and excavation related to construction of the Long Sault control dam, three miles upstream.)

Ontario Hydro's role in this unique and vital international scheme, which will exert a tremendous impact on the geography and economic future of Canada (as a result of the power development and the related seaway phase), involves the tremendous obligation of rehabilitating some 5,000 persons whose homes and properties will be affected by the new headwater level.

The Commission's initial plans and proposals for this rehabilitation program were revealed to representatives of the communities concerned at a conference on August 17 as a preliminary to further and more thorough discussions with each municipality and individual concerned.

As a fitting climax to this historic month, Her Royal Highness the Duchess of Kent officially opened Hydro's 1,828,000-horsepower Sir Adam Beck-Niagara Generating Station No. 2 on August 30.

Viewed individually, or in their entirety, these are events which are destined for prominent mention in the glowing record of Ontario's, and hence Canada's economic expansion. They are, we feel certain, milestones of progress which will be recalled with reverence and gratitude by succeeding generations.



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Authorized as second class mail,  
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#### CONTENTS

Tribute to Bob Saunders	2
Public Acclaim	2
Romance of Niagara	5
Radio Aids Changeover	5
A Dream Come True	5
Radar Traffic Control	7
Press Prizes	2
Along Hydro Lines	4
Bright Future	1
Marching on Manitou	2
System Standards	6
Home-town Honors	9
Changeover Curios	0

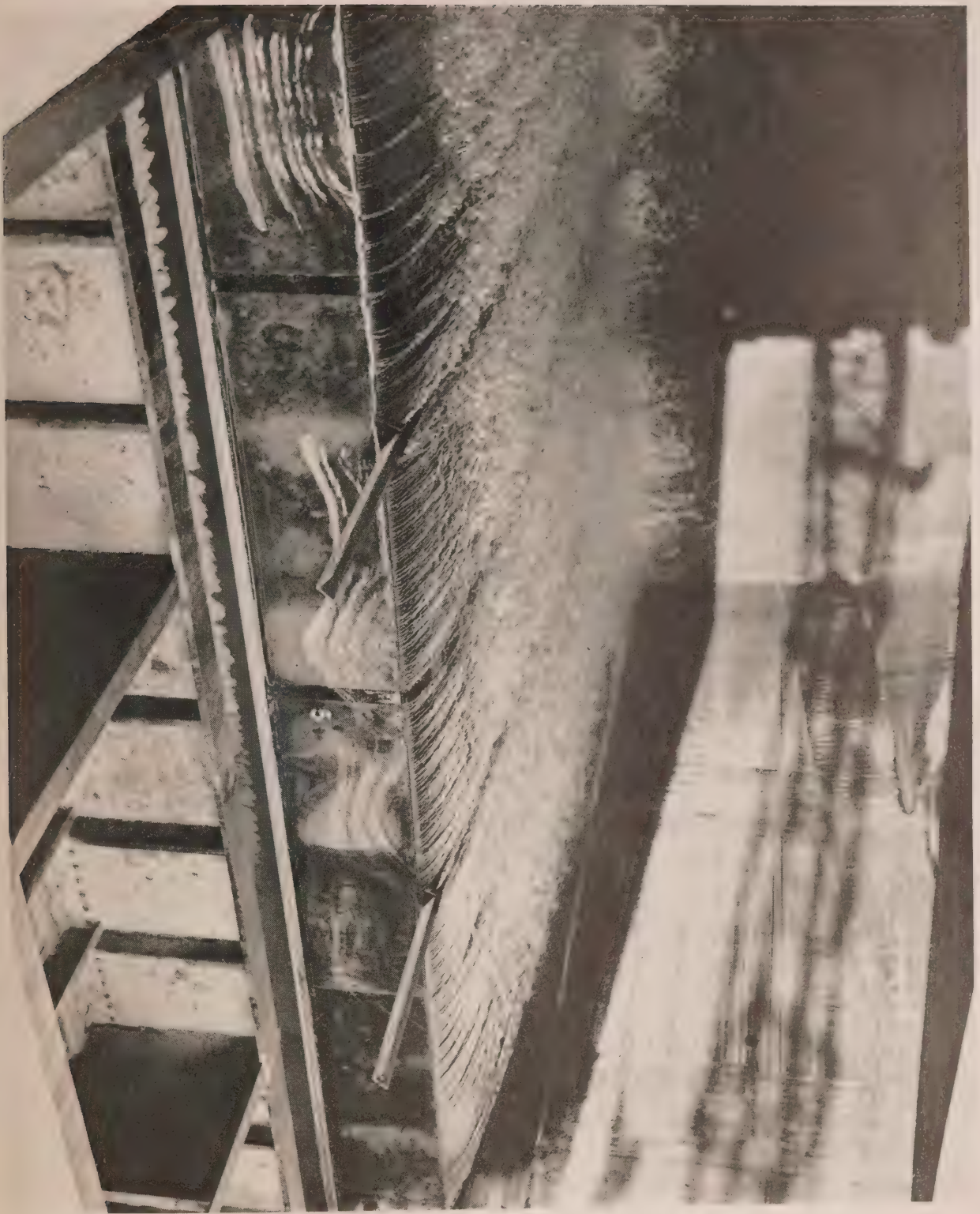
#### COVER SHOTS

**T**HE imposing silhouette of a huge 67-ton power shovel against the background of a high-tension tower on this month's front cover, symbolizes the skill and might of Ontario Hydro engineers as they push back the rugged forests of the province's northern frontier to construct a new generating station on the English River at Manitou Falls.

Our back cover also shows the massive power shovel being floated across the river to start excavation of a diversion channel.

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**PHOTOGRAPHIC CONUNDRUM** — In case the reader is suffering from summer ennui, he or she may find it diverting to puzzle out the proper way to hold the photo on this page to understand what it's all about. Actually, it shows an ingenious, Ontario Hydro engineering operation at Niagara Falls. If you're interested turn to Page 28 for full details.



# THE PEOPLE OF ONTARIO PAY TRIBUTE TO

# BOB SAUNDERS

## Ontario Municipal Electric Association Sponsors Largely-attended Complimentary Dinner in Honor of Ontario Hydro Chairman

**"E**SPECIALLY do we associate your dynamic personality with the resolution of the great St. Lawrence Power Project and the pre-eminent role you have played in making this dream of Canadians an ultimate reality . . ."

This was the heart of the enduring tribute—one of many—paid to the Chairman of Ontario Hydro, Robert H. Saunders, by the officers and members of the Ontario Municipal Electric Association on the night of July 22 in the Royal York Hotel at a testimonial dinner in his honor.

Led by Hon. Leslie M. Frost, Prime Minister of Ontario, some 650 dignitaries, municipal and Ontario Hydro officials, and representatives of business and labor in the province, warm-heartedly applauded the announcement by Lt. Col. A. A. Kennedy, President of the O.M.E.A., that the Canadian section of the St. Lawrence Power Project would be named "The Robert H. Saunders St. Lawrence Generating Station."

Seldom has a wider expression of public opinion in this province been represented by a single gathering of men in public life; seldom has there been a wider unanimity of opinion among those present. The ovation that greeted Lt. Col. Kennedy's announcement carried with it the sentiment embodied in the plaque which was presented to Mr. Saunders by the O.M.E.A., sponsors of

the occasion. The tribute read in part:

"We, the Officers and Members of the Ontario Municipal Electric Association tender to you, on behalf of the people of Ontario, our warm expression of appreciation in recognition of the complete and untiring public service you have rendered as Hydro Chairman from the time of your appointment on March 1, 1948 . . . We are deeply conscious at this time of the far-reaching and inestimable contribution you have made, and are making to the future progress and destiny of Ontario and Canada . . .

We look forward to the future with confidence, under your leadership and your firm determination, that the proud traditions of Hydro will be perpetuated and that the people of Ontario, in the homes, the factories and on the farms will continue to have low-cost power in abundance with efficient service."

There were many supporting tributes.

As Prime Minister of Ontario, Mr. Frost brought greetings from the province and expressed hearty appreciation to Mr. Saunders for his work on behalf of Hydro and the people of Ontario.



GEORGE F. HUTCHESON, Huntsville, Past President and Secretary of the O.M.E.A., formally presented an illuminated address and a boat to Mr. Saunders on behalf of his friends.





OVER 650 FRIENDS AND COLLEAGUES ATTENDED THE DINNER IN MR. SAUNDERS' HONOR.

"Bob Saunders," he added, "has indeed a dynamic personality. Ontario wants to get things done. Robert is the person who does get things done. He pushes them through with full energy and that is one of the reasons Canada and the people of the United States are today launching a great international power project."

#### Colorful Period

A. W. H. Taber, President of the Association of Municipal Electrical Utilities, expressed his pleasure in conveying his association's best wishes to Mr. Saunders. He described the period since 1948 as "the busiest and certainly the most colorful years in Hydro history." Mr. Taber stated that members of the A.M.E.U. were greatly interested in de-

veloping the province's resources, and that enlightened Hydro policy had made it possible for technical men in the municipalities to fulfill many of their objectives. He expressed the wish that Mr. Saunders would continue for many years to come as Hydro Chairman.

On behalf of the City of Toronto, His Worship, Mayor Leslie Saunders extended civic greetings and stated that he was expressing the best wishes of all citizens in paying tribute to Chairman Saunders. The Mayor lauded the Chairman for his contribution to the city in past years.

D. P. Cliff, Secretary-Treasurer of the O.M.E.A., and one of its past presidents stated that the province was fortunate in having available a person with Mr. Saun-

ders' qualities during a very critical period.

Hon. George H. Challies, First Vice Chairman of the Commission, paid tribute to Mr. Saunders on behalf of the Commission and its entire staff. He described Mr. Saunders as being a man of great energy, persuasive personality, and in every way a credit to Ontario and the organization he serves.

As Chairman of the Council of Metropolitan Toronto, Fred G. Gardiner assured the gathering that he was happy to join in the evening's tributes and was pleased to have "Bob" Saunders as one of his personal friends. He added that Metropolitan Toronto, with its 13 municipalities and 1¼ million people, was

*(Continued on page 4)*



very conscious of the need for efficient Hydro operations. He pledged that he and his colleagues would support moves which were considered in the best interests of the area.

#### Boat Presented

A highlight of the evening was the presentation of a handsome boat to Mr. Saunders by George F. Hutcheson, Past President of the O.M.E.A. The craft is appropriately called the "Miss St. Lawrence."

Replying to these and other tributes, Chairman Saunders said:

"I find it an extremely difficult task to respond to the tributes I have heard tonight. I do appreciate very much the fact that you have gathered together in this way. I would like to take advantage of Colonel Kennedy's kind words and the wording expressed on the illuminated address by saying that this evening's testimonial occasion and the presentation of the wonderful boat are a distinct honor to all of the men and women of Ontario Hydro."

Recalling his appointment to his present position in 1948, the Hydro Chairman said he had immediately come into contact with a group of people whom



**O.M.E.A. PRESIDENT** Lt. Col. A. A. Kennedy announced that the Canadian section of the power project would be named "The Robert H. Saunders St. Lawrence Generating Station."

"I must describe as one of the most wonderful groups that one could meet."

#### Engineering Team

In this connection, he paid tribute to his Commission colleagues, the Hon. George H. Challies and W. Ross Strike—"two prodigious workers." Ontario Hydro's staff of 860 engineers, including Dr. Richard L. Hearn, General Manager and Chief Engineer, he termed "a marvellous engineering team, unequalled anywhere in the world."

"In accepting these beautiful gifts, I do so and will enjoy them as the representative of some 19,000 or more loyal Ontario Hydro employees," he said.

The negotiations in connection with the St. Lawrence Project were an education in co-operation—the co-operation between the Governments of Canada and the United States. They were an example of wonderful co-operation between the Governments of Canada and Ontario, each of which is headed by a great lawyer.

"I am very happy that the Prime Minister of Ontario made sure in the final agreements that our province was well-protected," he stated.

Mr. Saunders expressed also warm appreciation of the support received from such Canadian Government ministers as Rt. Hon. C. D. Howe, Hon. Lester B. Pearson, and Hon. Lionel Chevrier. He praised the officers and members of the O.M.E.A. and the A.M.E.U., and took the opportunity of thanking representatives of the press, radio, motion pictures and television—all of whom, he said, have rendered important assistance.

Indicating the Commission's deep interest in the development and preservation of Ontario's natural resources, he announced that Hydro was planning to offer one or two scholarships to university graduates so that they might study in other lands the conservation of natural resources. These scholarships or travelling fellowships will be open to graduates in engineering, forestry, and other courses. Details are now being arranged with the University of Toronto he added.

Concluding, he said: "I appreciate wholeheartedly your kindness tonight and I am proud that I have had some part in the development of this great province." —by *Denis A. Heeney*.



**ONTARIO'S Prime Minister, the Hon. Leslie M. Frost, left, and Mrs. Saunders, right, were among the first to congratulate the Hydro Chairman on the honors conferred on him.**



# PUBLIC ACCLAIM

## MORRISBURG DISTRICT CITIZENS HONOR HYDRO'S FIRST VICE-CHAIRMAN

**I**N THE HEART of the St. Lawrence Seaway and Power Project development area, a capacity crowd of more than 200 residents from Morrisburg and district paid a warm and sincere tribute July 16 to one of its most notable citizens, Hon. George H. Challies, Ontario Hydro's First Vice-Chairman and M.P.P. for Grenville-Dundas.

Thunderous applause greeted Mr. Challies as he entered the Assembly Room of his own church, Morrisburg United Church, to be honored by the people he has represented continuously in the Ontario Legislature for 25 years. The testimonial dinner was in appreciation of his service to the community and his efforts toward the realization of the long-sought St. Lawrence development.

As a token of the esteem of a large group of friends, Mr. Challies was presented with a pen and pencil set by Reeve George Beavers, of Morrisburg, and Councillor Fred Broder, Chairman of the town's planning committee.

### Public Servant

Mr. Challies, whose distinguished career as a public servant began in Morrisburg where he served as reeve, has held the Cabinet posts of Provincial Secretary and Minister of Game and Fisheries. Today he is the spokesman for Ontario Hydro in the Ontario Government as Minister without Portfolio. His association with Hydro began in 1943 when he was appointed Commissioner. In 1946 he was named Vice-Chairman, becoming First Vice-Chairman the following year.

Speaking in a town which will have one-third of its area flooded by the power development, Mr. Challies emphasized that everyone (some 5,000 persons) along the north shore of the river whose property will be inundated will be treated equally. He promised "a fair, just, equitable and generous settlement for all. However, we are all old enough not to believe in Santa Claus," he added with a chuckle.

The First Vice-Chairman said that Morrisburg had every reason to rejoice that the long periods of negotiations and



 EXPRESSING the esteem of his colleagues and friends was the presentation of a pen and pencil set to Mr. Challies. Left to right are: Morrisburg Councillor Fred Broder, Hydro's First Vice-Chairman, and Morrisburg's Reeve George Beavers, who introduced the guest of honor.

delays had ended and that it was now possible to look forward to completion of the massive engineering project that would make Canada's share of St. Lawrence Power development (1,100,000 horsepower) available to the people of Ontario.

Although many have prophesied that the development will produce something of an industrial revolution in the area, he warned that large industries seeking sites would favor locations where municipalities show evidence of progressive planning. He stressed that the communities which would profit most were those now laying the wisest plans.

### Early Advocate

Mr. Challies traced the history of the St. Lawrence project, recalling that in 1924 he was a member of a delegation which went to Toronto to see Sir Adam

Beck, known as "The Father of Hydro," and the first Chairman of Ontario Hydro, regarding the possibility of developing electrical energy from the river. Since that time, he has devoted much of his energy toward making the St. Lawrence dream a reality.

The complimentary dinner heard tributes from A. C. Casselman, M.P. for Grenville-Dundas; John Fader, Reeve of Winchester (Mr. Challies' birthplace); L. C. Davis, Reeve of Iroquois and Warden of Grenville-Dundas, and Raymond Armstrong, legal consultant for the municipalities affected by the project.

In expressing his thanks, Mr. Challies said it was very gratifying for a representative of a democratic government to be publicly praised and honored in his own constituency and home town.—by A. A. Bolte.



# ROMANCE OF THE NIAGARA

**For many decades this great international river and the famous falls have been symbols of scenic grandeur and hydro-electric power**

*(In the following pages, Dr. Richard L. Hearn, the Commission's General Manager and Chief Engineer, traces the history of the River and its contribution to the economic growth of Ontario. This material formed the basis of an address presented at a recent meeting of the Engineering Institute of Canada.—Editor's Note.)*



**BRAVING** a drenching rain, some 3,000 people applauded as The Duchess of Kent officially opened Ontario Hydro's 1,828,000-horsepower Sir Adam Beck-Niagara Generating Station No. 2 on August 30. As Chairman Robert H. Saunders looks on, Her Royal Highness presses button to place first three units in service.

**T**HE history of the Niagara River and Falls dates back some 200,000 years to the ice age when glaciers thickly covered the Great Lakes area. As the glaciers melted and retreated, vast lakes and drainage systems developed which were the forerunners of the present-day geography of Southern Ontario.

The Falls themselves and, in fact, the upper Great Lakes, owe their existence to the hard limestone strata which forms the Niagara river bed and the crestline of the Falls. This hard rock formation has prevented Lake Erie from draining completely into Lake Ontario.

Following the scoring and gouging of the earth's crust, the glaciers melted. A lake was formed in the Erie basin which found an outlet over the Falls to Lake Ontario while most of the Upper Lakes water flowed down the Ottawa River which extended far up the St. Lawrence valley. When the level of this body of water fell below the divide of the Ottawa, large volumes of water began to flow over the flats of what are known as the St. Clair and Detroit rivers. So today, the Niagara River is "backed" by a large natural headpond comprising four lakes formed by the glaciers—Superior, Huron, St. Clair and Erie.







NIAGARA River connects Lake Erie with Lake Ontario, dropping 326 feet along its 36-mile length, particularly in the eight-mile area between Chippawa and Queenston. River drops 160 feet at the Horseshoe Falls, which has a 2,600 foot crestline. 

Dependability of flow is an extremely important factor in determining the value of a river with respect to the production of hydro-electric power. In this regard the Niagara River, with its vast storehouse of water to draw upon, ranks with the best, as indicated by the comparative table: (daily mean flows)

St. Lawrence River: Outstanding for its dependability and uniformity of flow, with a maximum to minimum flow in the ratio of less than 2:1.

Niagara River: Maximum to minimum ratio of flow, excluding diversion factor, is 3:1.

Ottawa River: Maximum to minimum flow ratio is 12:1.

Columbia River: Maximum to minimum ratio of flow is 28:1.

### Industrial Progress

In the latter part of the nineteenth century, industry in Southern Ontario faced a crisis—where to find a cheap dependable source of power to keep the wheels of industry turning. The timber line was fast receding and it had become uneconomical to haul wood for steam operated plants. Coal from the United States was too costly for sound opera-

tion. Even the use of localized water power plants to produce electricity was not entirely satisfactory since their output was confined to a small radius, and the denuding of the forests meant heavy spring run-offs with consequent low water flows for the rest of the year.

The answer to future progress was the utilization of dependable river flows, such as the Niagara River, to produce electricity and transmit it to the growing manufacturing centres. For more than 60 years, the waters of Niagara have been used to generate the electricity which has been one of the chief factors in the economic strength and growth of Ontario.

### International Treaties

The Boundary Waters Treaty of 1909-1910 was signed between Great Britain and the United States. As it relates to Niagara, this treaty permitted, for power purposes, the permanent daily diversion from the Niagara River above the Falls of 20,000 cubic feet of water per second to the United States, and of 36,000 cubic feet per second to Canada. During World War II, Ontario Hydro obtained an additional 5,000 cfs of water for

power purposes at Niagara Falls through the Long Lac-Ogoki diversions. Additional, temporary diversions were obtained through an exchange of letters between Canada and the United States of America in the years 1941, 1944, and 1948. These temporary diversions amounted to 15,500 cfs—2,500 cfs of which was available only during the non-navigation season—and enabled the Commission to operate all of the plants on the Canadian side to their maximum capacity. The power companies on the United States side of the Niagara River also obtained additional diversions under temporary permits to enable them to operate their plants at full capacity.

In order to maintain a proper pool level above the Falls, a submerged weir was built just below Chippawa and above the Rapids during the years 1942 to 1944. This submerged weir assisted in maintaining the level of the Grass Island Pool, even at times of increased diversion for power purposes, and at the same time increased the flow over the American Falls, thus enhancing the scenic effect considerably.

(Continued on page 8)





 CONSTRUCTION STARTED AT THE CANADIAN NIAGARA COMPANY PLANT IN 1901. IT HAS AN OPERATING HEAD OF ABOUT 135 FEET.


After the cessation of hostilities, negotiations were entered into by Canada and the United States with a view to revising the 1909 Treaty (Great Britain and United States) to permit redevelopment of power on both the Canadian and American sides of the Niagara River. These negotiations resulted in the signing at Washington on February 27, 1950, of a new treaty known as the Niagara Diversion Treaty. The significant feature of the new treaty was that instead of a definite amount of water being designed for power as in the 1909 Treaty, a definite flow over the Falls was stipulated to preserve and enhance their scenic beauty. The balance after allowance for domestic, sanitation and navigation purposes is allowed to be diverted for power production—50 percent to each country—exclusive of the 5,000 cfs Ogoki diversion which belonged entirely to Canada. When the 1950 Treaty was ratified on October 10, 1950, Ontario Hydro was in a position to start immediately on the redevelopment of the Niagara River with the construction of the Sir Adam Beck-Niagara Generating Station No. 2.

#### First Diversion

The first diversion of water for power purposes on the Canadian side was the small plant constructed in 1893 to operate the International Railway Company's electric line from Chippawa to Queenston. This plant was operated under a head of 62 feet with an ultimate capacity of 3,000 h.p. in 2 units. In 1932, on the expiration of the 40-year lease, the railway was dismantled and the plant abandoned.

At the turn of the twentieth century, hydro-electric power development at Niagara Falls on the Canadian side



 BUILDING of the Ontario Power Generating Station (middle photo), started in 1902. Situated near the foot of the Horseshoe Falls, this plant was acquired by Ontario Hydro in 1917. One of the underground conduits, built during World War I (lower photo) is regarded as one of the largest wood stave lines (113 feet in diameter) in Canada and is still in operation.



received a tremendous impetus when three large power stations were in the course of construction at the same time, namely, those of the Canadian Niagara Power Company, the Ontario Power Company, and the Electrical Development Company.

#### Canadian Niagara Power Company

The Canadian Niagara Power Company was the first to begin construction operations in 1901. The plant has an operating head of approximately 135 feet. Between 1904 and 1924 eleven vertical type units were placed in service with an installed capacity of 121,000 horsepower.

This plant followed the same design as the Adams plant of the Niagara Falls Power Company on the American side. The water is obtained from the Niagara River by means of a gathering weir and is carried to the water turbines by penstocks at the bottom of the wheel pit. The discharge from the draft tube is taken back to the Niagara River by a long tail-race tunnel.

#### Ontario Power Company

The Ontario Power Company in 1900 acquired a charter granted by the Dominion Parliament in 1887 and began work in July, 1902. The design used by this company for its development showed a radical departure from the two plants mentioned earlier. While water was diverted from the Niagara River by a gathering weir, it was carried underground across country from this point through three pipelines, 6,500 feet long, to the top of the escarpment just below the Canadian Falls and from there down through penstocks to the power house, situated on the bank of the river below the Falls. By this arrangement, the Ontario Power Company was able to obtain an operating head of 180 feet. The present equipment in this plant consists of 15 units—the horizontal type with double runner turbine units. The rated capacity of the plant is 195,700 horsepower. In August, 1917, the station was purchased by Ontario Hydro.

The plant is of particular engineering interest as it was on this development that one of the largest steel conduits, 18 feet in diameter, was installed. The second pipeline was one of the largest oblate reinforced concrete pipes ever constructed in Canada and the third pipeline, put in as an emergency measure during World War I, is one of the largest wood stave lines in the Domin-



**SITUATED just above the Horseshoe Falls, the Toronto Power plant, purchased by Ontario Hydro in 1922, with an operating head of 137 feet, has an installed capacity of 160,500 hp.**

ion. This 13-foot diameter wood stave pipe was concreted on the outside and is still operating. The steel bands of the wood stave pipe are being used for taking the tension, and the concrete on the outside is used for water tightness and stability.

It was for this development that the late R. D. Johnson invented, designed and installed the first Johnson differential surge tank in the world. It was also for this plant that he designed and installed the Johnson differential valve, and designed and built one of Canada's largest reinforced concrete tanks at that time.

The Ontario Power Company plant has an interesting historical background. It was twice flooded with water and ice, in January, 1938, when the ice below the Falls reached a level some 58 feet above normal at the south end of the plant. It was at that time that the Upper Steel Arch Bridge was destroyed.

#### Electrical Development Company

The Electrical Development Company plant, later the Toronto Power Development, was built simultaneously with the Canadian Niagara and the Ontario Power Company developments. Work began in 1903 with the installation of the eleventh and final unit in 1914. This plant is the same type as the Canadian Niagara and is situated just upstream with an operating head of 137

feet and has an installed capacity of 160,500 horsepower.

The Electrical Development Company was leased by the Toronto Power Company in 1908 and was operated by them until acquired by the Ontario Hydro in 1922. Since that date it has been known as the "Toronto Power" plant. It was from the Toronto Power Company, incidentally, that the city of Toronto first received electricity generated from the waters of the Niagara River.

While Niagara was being harnessed by these three companies, industrialists and leading businessmen in Toronto and Western Ontario were advocating methods whereby this power could be generated and transmitted to the industrial centres in Southern Ontario at economical rates, and thus provide energy for industrial expansion and the improvement in the living conditions of the people.

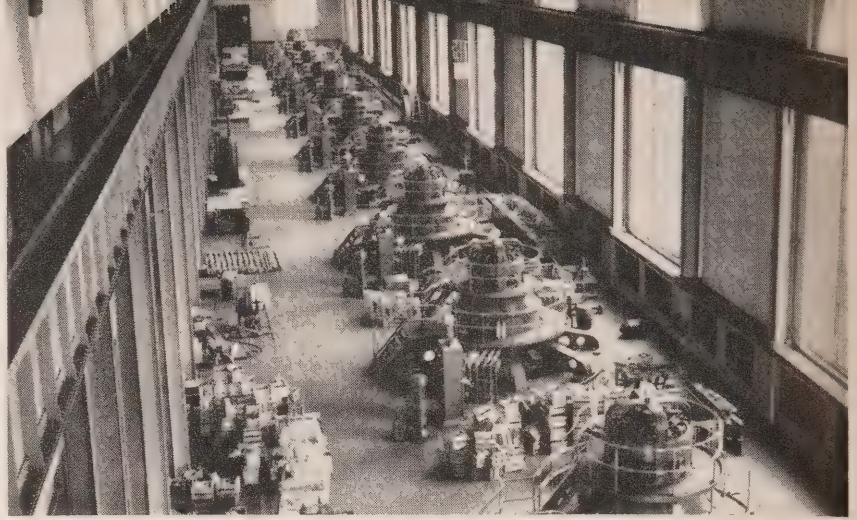
On February 17, 1903, in the Y.M.C.A. Hall (Berlin) Kitchener, 67 persons gathered to discuss the idea of public ownership of hydro-electric power. These men included representatives from manufacturers' associations, boards of trade and municipal councils of municipalities.

This was the first meeting, in connection with the power movement, attended by Adam Beck who, at the time, was

*(Continued on page 10)*



INTERIOR of Sir Adam Beck-Niagara Generating Station No. 1, first major hydro-electric plant built by Ontario Hydro. Completed in 1930, it was, for several years, regarded as world's largest hydraulic plant.



Mayor of London and a member of the Ontario Legislature, as well as a prominent manufacturer in his own right. From the time he appeared as a supporter of the low-cost power movement, he assumed a position of leadership.

As a direct result of the efforts of these men who led a general movement on behalf of cheaper hydro-electric energy, The Hydro-Electric Power Commission of Ontario was created by a special act of the Provincial Legislature in 1906.

### Niagara Power

On May 4, 1908, fourteen municipalities made the first Hydro contract for a total of 26,235 horsepower. Those municipalities were Kitchener, Hespeler, Galt, Preston, Waterloo, New Hamburg, Toronto, London, Guelph, Stratford, St. Thomas, Woodstock, St. Marys, and Ingersoll.

This municipal enterprise was begun by purchasing power by public tender from existing companies which had extensive plants already erected at Niagara Falls. Consequently, in 1908, the Commission on behalf of the municipalities, entered into a contract with the Ontario Power Company for the

supply of 100,000 horsepower at 12,000 volts at \$9.40 per horsepower-year up to a load of 25,000 horsepower after which the price would be \$9.00 per horsepower-year. The Commission proceeded to build transformer stations and transmission lines for the distribution of this power to the contracting municipalities, and by the end of 1910, approximately 1,000 horsepower was being distributed to a number of municipalities.

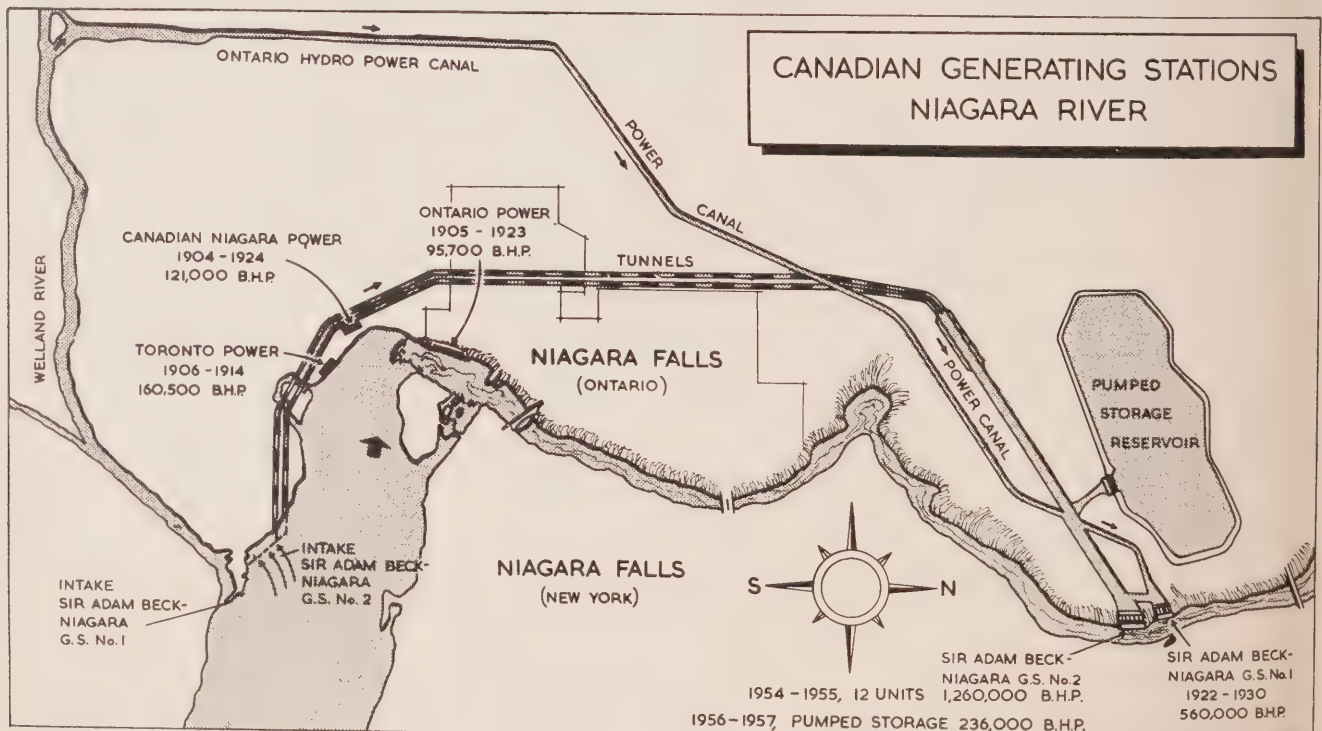
This small load increased until by 1915 the Commission reached the limit

of its contract with the Ontario Power Company for 100,000 horsepower. The Commission arranged for additional power supply from the Canadian Niagara Power Company of 50,000 horsepower and from the Toronto Power Company of over 25,000 horsepower.

### Queenston Development

In 1914, Ontario Hydro first considered a power development at Niagara Falls that would use the maximum economical head between Lake Erie and Lake Ontario. As a result of these

MAP shows generating stations along the Canadian side of the river. Years shown beneath name of each plant refer to period in which units were installed. Brake horsepower figures represent installed turbine capacity of plant when completed.





studies, construction of the Queenston-Chippawa Development, now known as Sir Adam Beck-Niagara Generating Station No. 1, was started in 1917. The first units were put into operation in 1922 and the tenth unit in 1930. At the time this plant was built, it was the largest hydro-electric development in existence.

### General Scheme

The general scheme of development comprises an intake structure at the junction of the Welland and Niagara Rivers at the Town of Chippawa. At this point, water is drawn from the Niagara River through the intake, and into the Welland River whose flow was reversed for four miles. From this point, a canal was constructed across country on the west side of the city of Niagara Falls and through the Township of Stamford to a point on the Niagara escarpment, a mile south of Queenston. The 8½-mile long canal was one of the largest hydraulic power canals when constructed and in its design presented many interesting hydraulic problems.

The units in the power station vary from 52,500 to 58,000 horsepower and are of the vertical type. At time of installation, they were the largest hydraulic generating units ever constructed. A few years later, however, the Niagara Falls Power Company on the American side put in some 70,000 horsepower units. Power generated in the Queenston plant is sent as far west as Windsor and Sarnia, a distance of 240 miles.

During the past 32 years since this plant was built, there has been quite a radical change in the switching and transformer layout. These elements of the station now have been placed outside to eliminate the hazards present with an inside installation.

### 300-Foot Head

Further details of this plant may be obtained readily from many earlier publications, but it should be noted that in laying out this plant, Ontario Hydro engineers were able to develop it under a gross head of 300 feet out of a possible 326 feet which is the normal difference in level between Lake Ontario and Lake Erie. The type of turbine and generator setting used in the plant set the pattern that is used today in practically all large hydraulic generating plants.

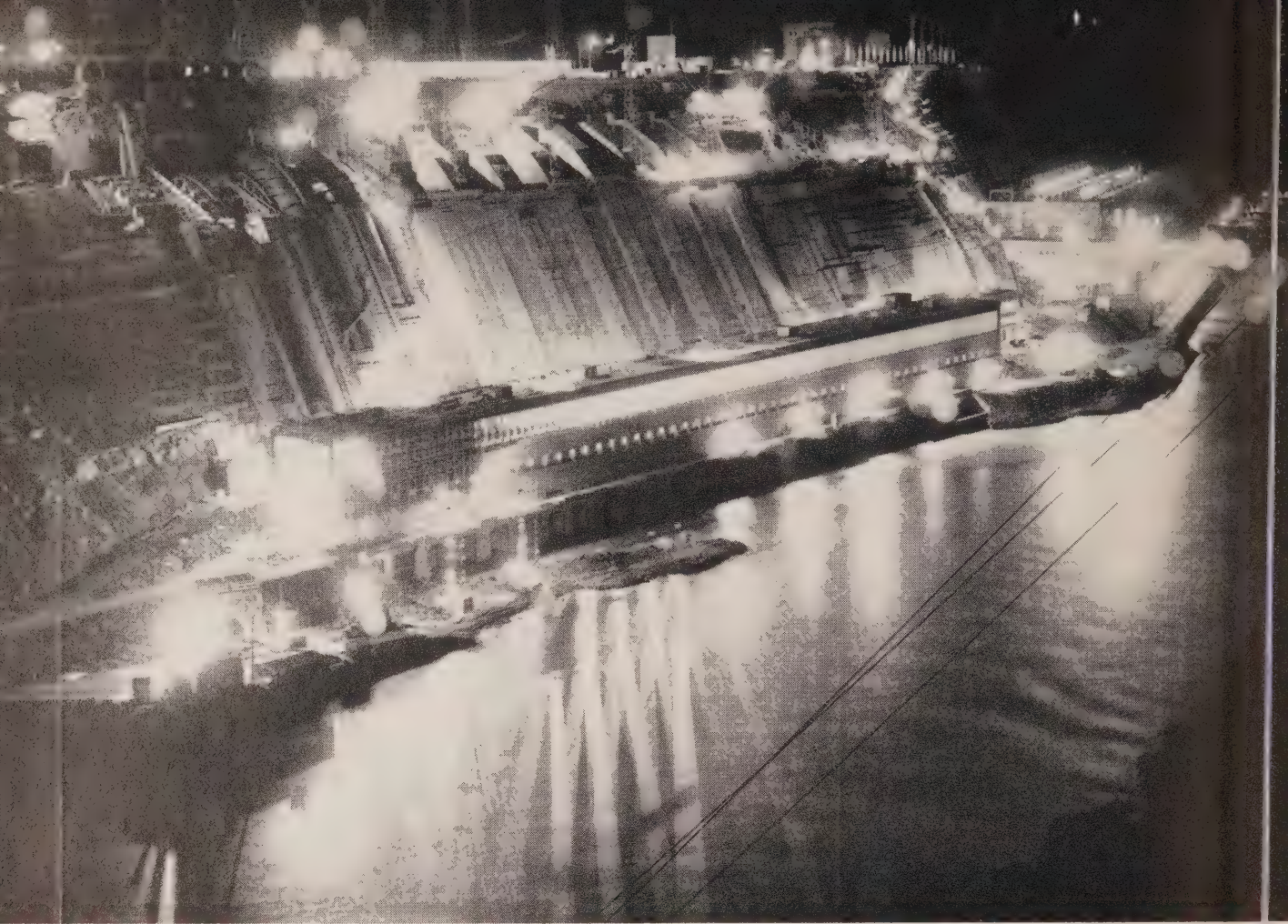
On the completion of the Queenston-Chippawa Development, further developments in the Niagara River were not

(Continued on page 12)

## No. 1 vs. No. 2

	Sir Adam Beck-Niagara G.S. No. 1	Sir Adam Beck-Niagara G.S. No. 2
<b>Intake</b>	Open type—Bulk head Length 630 feet	2—slot type 500 feet long
<b>Waterways</b>	4 miles of Welland River enlarged and flow reversed 8½ miles canal through earth and rock. Capacity 16,000 cfs.	2 tunnels—concrete lined 45' finished diameter, 5½ miles long. 2¼ miles of open cut, 185' to 200' wide. Depth of water—approx. 25'-30' Capacity—20,000 cfs each.
<b>Gate House</b>	550 ft. long 10 plate steel penstocks Units 1-5—16' tapered to 14' diam. 6-10—16' diam.	16 units—Length 880' 16 plate steel penstocks approx. 492' long. 19' diam.
<b>Power House</b>	590' long. 135' wide 10 units—52,500-58,000 h.p. Transformers inside Low and high tension switching in back part of generating station. High tension voltage 130,000	1,150 ft. long; 63' wide 16 units—105,000 h.p. Transformers outside— back of generating station. High voltage switching outside located between forebays of No. 1 & No. 2 stations, on escarpment above power house. Voltage—220,000.
<b>Earth Excavation</b>	13,300,00 c.y.	5,834,000 c.y.
<b>Rock Excavation</b>	4,700,000 c.y.	11,417,000 c.y.
<b>Concrete</b>	500,000 c.y.	1,907,000 c.y.
<b>Earth &amp; Rock Removal</b>	Earth and rock removal by electric and steam shovels by means of railway equipment.	Earth and Rock removal by means of electric and gas shovels and truck equipment.
<b>Time</b>	Time required for con- struction for first units in operation—4½ years.	Time required for con- struction first units in operation—3½ years.
<b>Total Installed Capacity</b>	560,000 brake horsepower	1,260,000 brake horsepower in 12 units (initial phase) in main generating station; 236,000 b.h.p. in pumping generating station.
<b>Maximum Number Employed</b>	Approx. 10,000.	7,000.
<b>Work Week</b>	6 days	5 days
<b>Work per shift</b>	10 hours	9.6 hrs. tunnel worker 8.8 hrs. surface worker
<b>Cost</b>	\$76,900,000	Including pumped storage— Estimated at \$343,700,000.





—(Fednews)

**HYDRO-ELECTRIC** power is dramatically symbolized in this striking night view of Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2 (centre). The older No. 1 plant is also visible, upper right.

possible with the amount of diversion permitted under the 1909 Treaty referred to earlier. It was not until the 1950 Treaty was ratified that Ontario Hydro could start on further development on the famous Niagara River.

#### **All-System Expansion**

In spite of an all-system expansion program, begun in 1945, Ontario Hydro found itself in a situation where even the completion of the development of Ontario's share of the Ottawa River would not be sufficient to take care of the Province's rapidly growing power demands brought about by the phenomenal industrial expansion and increase in population. In addition, the development of the St. Lawrence was still tied up in red-tape and international political differences and could not be started in time to supply these growing demands for additional power. Therefore, the Commission in the fall of

1950, immediately on ratification of the latest Niagara Treaty, put the wheels in motion for the development of the Sir Adam Beck-Niagara Generating Station No. 2. Work was started in the Fall of 1950 on the preparation of the roads and camps, and actual construction of the development itself was started in the early spring of 1951. The first unit was generating power by April 30, 1954, and six units are scheduled for operation at the end of this year. Six additional units will be in operation in 1955, making a total of 12 units with an installed capacity of 1,260,000 brake horsepower.

When the construction work on this plant was originally laid out, it was planned to install one intake, one tunnel with a capacity of 20,000 cfs, an open section of canal which could carry 40,000 cfs or the capacity of two tunnels, and a headworks, penstocks and power works for six units. Work on this

initial part of the development proceeded until mid-1952 when it was found that the power demands were growing so rapidly that it was necessary to set the sights higher and construct a second intake, a second tunnel and an additional six units, making twelve in all. During 1953 the Commission amended the program of work at Sir Adam Beck-Niagara G.S. No. 2 to provide for a pumped storage scheme and later, when required, for four additional generating units.

A storage reservoir of about 15,000 acre-feet and adjacent to the forebay will be created by a dike, and a pump-turbine plant will be built to raise water to the reservoir. The pump-turbine plant will operate as a generating station when water is being discharged from the reservoir and will have a capacity of up to 236,000 b.h.p. By virtue of this scheme, optimum use will be made of the Sir Adam Beck-Niagara Generating Stations since the storage



reservoir can be filled at night and the impounded water can be used during the daytime by generating units which would otherwise be idle because of increased flows of water over the Falls under terms of the Treaty. The pumped storage is expected to come initially into operation in the Fall of 1956 and to be completed in 1957.

The canal and forebay are now being enlarged and part of the headworks for the four additional units is being constructed; later, the powerhouse will be extended to accommodate the additional units. However, these four units will not be installed until high load-factor resources such as the St. Lawrence project and thermal power plants have been developed.

One of the features that made the pumped storage economical in connection with this development at Niagara Falls was the terms of the 1950 treaty that stated in part:

Required Flow over Falls—Tourist Season. April 1st to Sept. 15th: 8 a.m. to 10 p.m.=100,000 cfs. 10 p.m. to 8 a.m.=50,000 cfs. Sept. 16th to Oct. 31st: 8 a.m. to 8 p.m.=100,000 cfs. 8 p.m. to 8 a.m.=50,000 cfs.

Non-Tourist Season. Nov. 1st to Mar. 31st=50,000 cfs. at all times.

There are some very interesting engineering aspects in connection with the development of the Sir Adam Beck-Niagara Generating Station No. 2. The type of intake structure used for this development was first developed by the Commission and its Consultants, the late R. D. Johnson and P. Wahlman of New York, at the time the Sir Adam Beck-Niagara Generating Station No. 1 was designed, and was known as the Johnson-Wahlman slot type of intake. It was an intake developed for the purpose of obtaining a large amount of water from a shallow river, such as the Niagara, at a minimum cost and with the ability to prevent surface ice, (a very definite problem in the Niagara River), from entering the water conduits. This type of intake was used by the writer when he was associated with the H. G. Acres & Company, Consulting Engineers, during the period 1925 to 1931. This company in collaboration with Messrs. Johnson and Wahlman designed and supervised the construction of three such intakes: one at Gordon Creek for the Riordan Paper Company at Temiskaming, Ontario; one on the Grand River, New Brunswick, on the Grand Falls Development for the International Paper Company, now

controlled and operated by the Gatineau Paper Company, and one at Chelan, Washington, U.S.A. for the Washington Water Power Company on the Chelan River, a tributary of the Columbia River.

An intake of this type was also constructed by (1) the Shawinigan Water

Power Company under the design and license of Mr. Johnson in Quebec, and (2) the Montreal Engineering Company in Nova Scotia. Until the development of the Sir Adam Beck-Niagara Generating Station No. 2, Ontario Hydro had

*(Continued on page 14)*



AERIAL view of the upper Niagara River shows the intakes for Sir Adam Beck No. 1 plant (left foreground), and the No. 2 generating station, centre, near the Town of Chippawa.



ADJACENT Sir Adam Beck No. 1 and No. 2 plants, in this aerial photo, represent Ontario Hydro's maximum economical use of Niagara water for development of hydro-electric power.





MAP photo, based on records kept since 1764, indicates rate of recession of the Horseshoe Falls. From 1842 to 1905-06 rate was 4.2 feet per year; from 1906-1927 it was 3.2 feet per year, while from 1927-1950 the recession was only 2.2 feet.



MAP shows the scope and effect of Niagara Preservation Program, now underway, (Ontario Hydro News, June, 1954), to maintain and enhance the appearance of Niagara Falls, and to promote the maximum use of water for production of hydro-electric power.

not found a development in which this intake was suitable and economical.

#### Control Dam

Looking ahead, to the full operation of the new plant and the development of the United States side of the river, it has been found necessary to construct a remedial dam in the Niagara River just below the two intakes for the Sir Adam Beck-Niagara G.S. No. 2 in order to regulate the variations in the flow as prescribed by the Treaty, and also to maintain a water level in the Grass Island Pool on the Niagara River above the intakes at a level that will enable the water to be withdrawn without affecting the levels on the upper stretches of the Niagara River itself.

This 1,550-foot long dam consists of thirteen 100 ft. steel submersible gates of the Bascule type.

Another interesting phase of the design of the Sir Adam Beck-Niagara G.S. No. 2, was the twin concrete-lined tunnels,  $5\frac{1}{2}$  miles long, under the city of Niagara Falls, excavated at 51 feet diameter and lined with concrete to a finished diameter of 45 feet. These

tunnels connect to the intake structures on the bank of the Niagara River and carry the water under the City of Niagara Falls, underneath the canal of Sir Adam Beck-Niagara G.S. No. 1, and come to the surface at the Whirlpool Gorge on the west side of the canal feeding the Sir Adam Beck-Niagara G.S. No. 1. From this point to the forebay of the No. 2 plant, a distance of  $2\frac{1}{4}$  miles, the waterway was constructed in open channel 200 feet wide.

Studies indicated that the economical location for the powerhouse of the Sir Adam Beck-Niagara G.S. No. 2 was to the south of the No. 1 station. This meant that the open canal for the No. 2 station had to cross the canal for the No. 1 plant approximately 3,000 ft. above the point where the No. 1 canal entered the No. 1 forebay. Design studies also revealed that it was desirable and economical to operate hydraulically the forebays of both stations at the same operating level.

To accomplish this, the two canals cross, and the forebays of the stations are connected through an open channel at the east end of the two forebays

close to the screen house of the two developments.

The design of the intake, the tunnel entrance and exit, the cross-over between the two canals, the cross-over between the two forebays, and the shape and dimensions of forebay No. 2 were finalized by model tests in the hydraulic laboratory constructed by the Commission outside of Toronto, and the hydraulic laboratory of the University of Toronto.

It may be of interest to make a parallel comparison between these two stations, setting out the main features and the overall quantities of excavation, concrete and other materials used in the two developments. (See page 11).

The frequency of the Sir Adam Beck-Niagara Generating Station No. 2 will be 60 cycles, while the Sir Adam Beck-Niagara Generating Station No. 1 operates at 25 cycles.

With the completion of the major phase of the Niagara project in 1956, the Commission's dependable peak capacity will have been increased by 6,342,900 horsepower or 144 percent over the 1945 figure.



# RADIO AIDS CHANGEOVER

**O**NTARIO Hydro is making increasing use of radio communication in connection with its tremendous frequency standardization program now proceeding in Southern Ontario.

Efficiency of this radio service was increased by the recent co-operation of the Essex Detachment of the Ontario Provincial Police in granting permission to affix antennae to their 200-foot radio tower on the Gosfield town line near the Town of Essex. A small building at the base of the tower housed the Hydro's transmitters.

## Centre of Essex

This radio relay station, situated approximately in the centre of Essex County, permitted clear two-way communication between Hydro's area standardization office in Windsor and any part of the county where changeover work was in progress.

This radio service has been of particular benefit during standardization of Essex communities more distant from Windsor, such as Leamington. Customers in Leamington and surrounding districts were able to telephone the Windsor Area office on a special leased line. The Windsor office could then make contact with the radio-equipped Hydro truck nearest the customer's home, and in this way assure prompt adjustment to equipment which had been changed over. Essex customers frequently expressed surprise at the promptness of a Hydro technician's call after a request for service had been made.

## Radio Facilities

Similar radio facilities will be brought into operation in the Waterdown, Dundas, Lynden and Ancaster Township area, where changeover is scheduled to get underway this fall.

Base of operations for this area will be Ontario Hydro's A. W. Manby Service

ONTARIO Hydro Technician Joseph H. Harrison receives an instruction from the F.S.D. Area office at Windsor.



J. A. S. McDonald receives a report in the Windsor F.S.D. Area office from a radio-equipped truck in Essex County, demonstrating how the new system facilitates changeover communications.



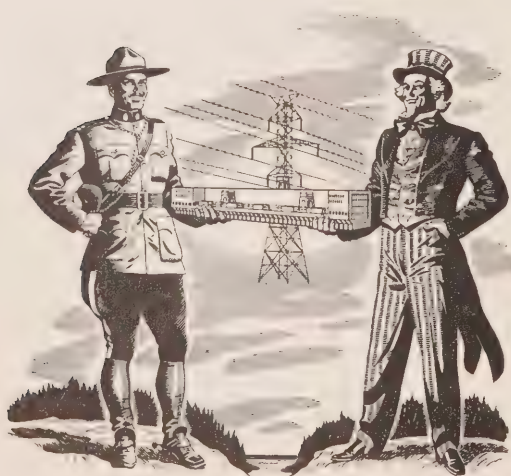
Centre and Transformer Station at Islington, near Toronto. A radio relay station will be established adjacent to the Bell Telephone Company's exchange at Waterdown. This radio service will also operate in conjunction with a special leased telephone line between Waterdown and the Service Centre at Islington.

These radio-telephone facilities, besides providing improved service to Ontario Hydro customers, obviate the need for a number of sub-area offices which are costly to operate. During the remaining period of the frequency standardization program, it is anticipated that the resulting economies will be substantial.  
—by Frank C. Wood.





PRIME MINISTER Louis St. Laurent (at the microphone) was one of the chief figures at Canada's St. Lawrence ceremony.



AN AUDIENCE of over 4,000 witnessed the joint ceremonies at Cornwall, Ontario, and Massena, N.Y., including many representatives of communities along the river.





# A DREAM COME TRUE

## Ontario Hydro and New York State Power Authority Launch Long-awaited St. Lawrence Power Project at Joint Ground-breaking Ceremonies

AUGUST 10, 1954, will forever be regarded as a memorable day in the history of Ontario Hydro and the destiny of Canada.

For on that day, the Commission, with its partner—the Power Authority of the State of New York—officially launched the long-awaited 2,200,000-horsepower St. Lawrence Power Project.

In sight of the tumbling waters of the St. Lawrence River, which has played a celebrated role in the histories of both Canada and the United States, important government, municipal and utility officials, citizens and representatives of press, radio and television organizations, participated in special “ground-breaking” ceremonies near Cornwall, Ontario, and Massena, N.Y.

It seemed particularly appropriate that August 10 should have been designated as the day for these epochal events. On August 10, 1535, Jacques Cartier, the intrepid French explorer from St. Malo, sailed into a bay on the mainland coast north of Anticosti Island (now called Pillage Bay), and named it after St. Lawrence (from which came the name

of the gulf and river), whose saintly martyrdom his Church commemorates on August 10.

Key figures at the joint ceremonies were Rt. Hon. Louis St. Laurent, Prime Minister of Canada; Hon. Leslie M. Frost, Prime Minister of Ontario; His Excellency, Thomas E. Dewey, Governor of the State of New York; Hydro Chairman Robert H. Saunders and Power Authority Chairman Robert E. Moses. Also joining in the Canadian ceremony were Rt. Hon. C. D. Howe, Canadian Minister of Trade and Commerce, as well as Defence Production; Hon. Lionel Chevrier, President of the St. Lawrence Seaway Authority; Hon. George H. Challies, Hydro's First Vice-Chairman; Lloyd C. Davis, Reeve of the Village of Iroquois and Chairman of the St. Lawrence Committee, and General the Hon. A. G. L. McNaughton, Chairman of the Canadian section of the International Joint Commission.

Attended by some 4,000 interested spectators, the Canadian ceremony, held on the grounds of Ontario Hydro's Cornwall Transformer Station, near the site

of the international powerhouse, reached a climax as Prime Minister St. Laurent, Prime Minister Frost and Governor Dewey shared the honor of turning the first sods for the great undertaking. Heightening the drama of the moment was the bursting of rockets overhead. As the rockets exploded high over Barnhart Island, they released an armada of miniature flags of both nations to which the large audience responded with vociferous and enthusiastic applause, which mingled with the strains of “O Canada” played by the R.C.A.F. band present for the occasion.

### Bond Rather Than a Barrier

As one of the chief speakers, Prime Minister St. Laurent said the St. Lawrence River “has become a bond rather than a barrier between Canadians and Americans.”

Mentioning the benefits to be derived from the vast project—1,100,000 horsepower of low-cost hydro-electric power for the residents of Ontario, and an equal amount for New York State—Mr. St.

*(Continued on page 19)*

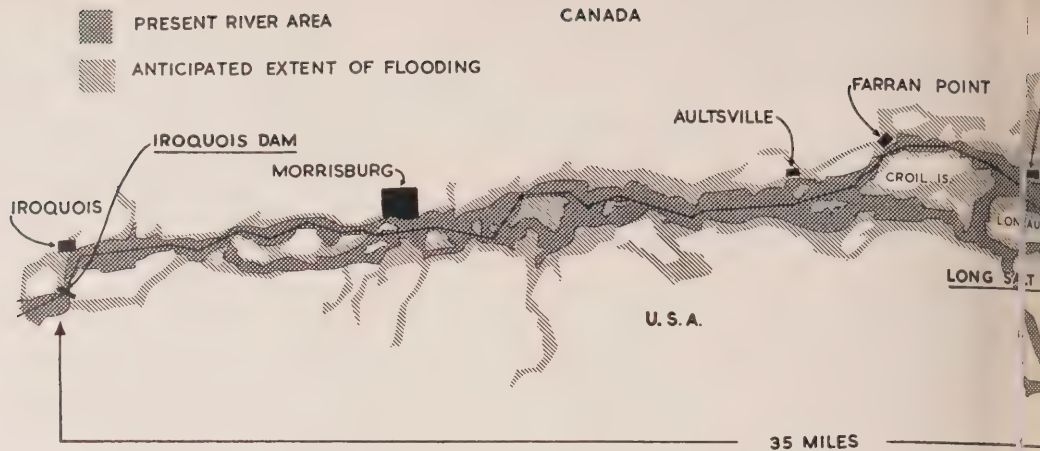
SHARING HONORS with Prime Minister St. Laurent, left, in turning the first sod at the Canadian ceremony were Governor Thomas E. Dewey, New York, and Prime Minister Leslie M. Frost. Looking on are, Power Authority Chairman Robert E. Moses, left, and Hydro Chairman Saunders.



AT THE New York ceremony, held near Massena, in sight of the Long Sault rapids, Governor Dewey detonated a charge of dynamite sending a geyser of water into the air to inaugurate construction of the Long Sault control dam.







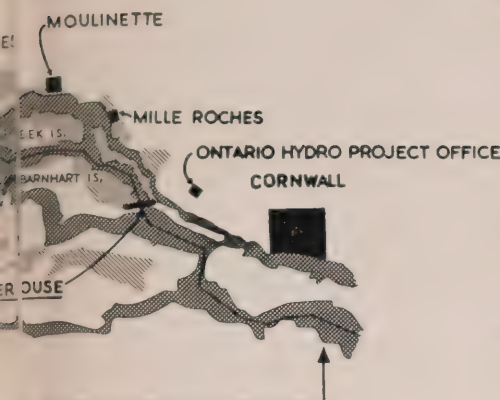
AERIAL photo of the St. Lawrence River in the Cornwall area shows two important sites: (A) Approximate location of the Long Sault control dam; (B) Approximate site of the international powerhouse, between the eastern end of Barnhart Island (C) and Canadian mainland, near Cornwall Transformer Station (D), three miles west of Cornwall.



GENERAL arrangement map shows the 35-mile International Rapids section of the St. Lawrence where the 2,200,000-horsepower project will be built. The three principal structures will be the powerhouse (1), three miles west of Cornwall; (2) Long Sault control dam, three miles upstream from the powerhouse, and (3) Iroquois dam, 25 miles upstream, near the Village of Iroquois, which will permit regulation of levels and outflow from Lake Ontario. An area of some 16- $\frac{1}{4}$  miles, indicated by the diagonally-shaded portions, and affecting approximately 5,000 people will, eventually, be inundated.







Laurent said this additional power supply would be of "real assistance" to the communities along the shores of the river "in enabling them to develop as part of Canada's expanding economy."

Congratulating Ontario Hydro and the New York Authority on the "efficient and vigorous manner" in which they have applied themselves to the realization of the great project, the Prime Minister said it was "an indication of what we may expect in the future."

"Certainly, I can say with all confidence the Premier of Ontario and Mr. Robert Saunders will spare none of that great energy and vigor, for which they are so well known, in finding solutions to the many problems which inevitably arise on great undertakings like this one, and I am confident also that they will have the full cooperation of Governor Dewey and Mr. Moses."

The power project, he continued, is an integral part of another great international undertaking—the St. Lawrence Seaway—which will open the Great Lakes to ocean-going ships by providing a 1,200-mile channel, 27 feet in depth from Montreal to the lakehead. "Since Montreal is 1,000 miles from the sea, this will create an inland waterway, 2,200 miles long into the heart of this continent."

Important as it is, Mr. St. Laurent expressed confidence in the fact that the St. Lawrence Power Project "will be but one of the many monuments which will bear witness to the good relations between our two nations, and to our desire to work with all peoples, as well as with each other, for peace and prosperity in the world."

#### Ontario Prime Minister

Ontario Prime Minister Frost, who received an enthusiastic greeting at both

ceremonies, hailed the occasion as another striking example of the harmonious relationship and co-operation between the peoples of Canada and United States.

Accorded a standing ovation when he appeared for the New York ceremony while the band played Canada's National Anthem, Mr. Frost told the large audience that "these works are of vital interest and concern to both of us. Vital as they are, they would not have been possible but for the cooperation of many years on both sides of the river."

Proudly, the Ontario Premier emphasized that Canada's role as the "master link" in Anglo-American unity was daily assuming greater importance.

Ardent and oft-times forthright advocate of both the power and navigational phases of the St. Lawrence development, Mr. Frost, during his speech at the Canadian ceremony, traced the history of the great river which he termed "Canada's front door." Although it flows along the international boundary for many miles, he said, the St. Lawrence has, for many years, been regarded as essentially a Canadian river.

For Hydro Chairman Saunders, the ceremonies were something of a tangible triumph and a reward for his tireless efforts in helping to make the power project a reality. Speaking briefly at the New York ceremony, he praised the co-operation of Governor Dewey in pressing for a "start" on the project on many occasions in the past decade.

#### Power Interconnections

"When I think of cooperation, I think also of the numerous power interconnections Ontario Hydro has with the neighboring States of New York and Michigan. These are the finest examples of international amity and understanding you will find in the world."

Visibly delighted that the project was being officially launched, the Hydro Chairman also praised the efforts of John Burton, former Chairman of the New York State Power Authority, and Robert Moses, the present Chairman.

Presiding at the Canadian ceremony, Mr. Saunders described the occasion as "a proud moment in the history of the Canadian people." He assured his audience, many of whom represented communities which eventually will be flooded by the development, that they need have no fears as it would be well over three years before the actual inundation takes place.

Mr. Saunders did, however, add in-

terest to his remarks when he pointed out that water would cover the land on which the ceremonies were held to the height of the flag-bedecked platform erected for the occasion.

Key figure at the New York ceremony, and also a welcome participant in the Canadian observance, Governor Dewey said the "mighty power project" is by many times "the greatest ever undertaken by any state in history."

It marked, he said, the first time that two North American states—the Province of Ontario and the State of New York—have ever joined hands across an international boundary to create a "vast hydro electric project for the benefit of the people of two nations."

The project itself is the "second largest in all North America," Governor Dewey stated, "excelling all others except Grand Coulee, larger than Bonneville, and producing more hydro-electric power than all the dams of the Tennessee Valley Authority put together."

#### Atomic Power

Speaking of the "threat or promise that atomic energy might take the place of all other power," the Governor reported that a panel of experts has expressed the opinion that, while the promise of atomic energy for general consumption is real, nuclear power will largely be in the research and development stage for the next decade, according to present indications.

For the following decade, nuclear power can be expected to compete in cost with only a small portion of the highest cost new plants. By the end of 30 years, nuclear plants can be expected to compete in price with the highest cost one-third of new steam plants. On the other hand, he continued, the estimated cost of St. Lawrence River power will still be much lower than the cheapest atomic energy.

Extolling the spirit of cooperation evident in this joint international project, the speaker said: "This is a day of triumph over internal obstruction, but more importantly, a day of celebration. The free world will be materially stronger, both physically and spiritually, as a result of this day's deeds."

At both ceremonies the Governor read a telegram of congratulation from President Eisenhower:

"On this very happy occasion marking the beginning of the fulfillment of a dream we have long cherished, I extend my best wishes to Prime Minister St. Laurent and Governor Dewey, and my

(Continued on page 20)



heartiest congratulations to the officials of the Ontario Hydro-Electric Commission and the New York Power Authority. The St. Lawrence project, which will bring so many material blessings to the people of our two countries, will be yet another strand in the strong fabric that binds the destinies of Canada and the United States."

### Vanquishing Frontier

Another prominent figure at the joint celebrations was Power Authority Chairman Robert E. Moses, who termed it an occasion "which will loom large in the history of this hemisphere, for here we shall have vanquished the last of our unconquerable frontiers."

The inauguration of a gigantic joint power enterprise on "our greatest boundary stream" is a genuine cause for rejoicing, he said. The occasion, he continued, was not a minor birthday, for "on this day we match our wits and our strength with the swift and chilly currents of the international corridor of the mighty St. Lawrence, appoint new limits for it, harness its energies, and dig the bypass through which freighters can make their way to traffic in deep waters.

"We shall be sparing of promises, but, we hope, generous in performance. If we cannot everywhere and immediately be popular, we aim always to be respected. If, five years from now, the verdict is in our favor, we shall be well-satisfied."

The New York State ceremony, held in a recently-cut oat field on Polly's Bay, in sight of the turbulent Long Sault Rapids section of the St. Lawrence, was a colorful event. Governor Dewey, at the conclusion of his address, pressed a button which detonated charges of dynamite, sending geysers of water high into the air to signal construction of the Long Sault control dam between the western tip of Barnhart Island and the United States mainland, three miles upstream from the powerhouse structure. Like the Canadian celebration, the New York ceremony reached its breathless climax as rockets began to explode overhead sending down a shower of Canadian and American flags.

### Cornwall Luncheon

At a luncheon in the Cornwall Armouries following the ceremonies, the special guests included Prime Minister St. Laurent, Prime Minister Frost, Governor Dewey, Rt. Hon. C. D. Howe, Hon. Lionel Chevrier, Mayor Aaron Horovitz, Cornwall, and Mayor Stowall T. Fournia, Massena, N.Y., Hon. George



**GOVERNOR Dewey, left, welcomes Ontario Prime Minister Frost and Hydro Chairman Saunders at the New York ceremony which was held in an open field as part of the celebrations.**

H. Challies, in company with other officials of Ontario Hydro and the New York Authority, as well as representatives from the St. Lawrence municipalities to be directly affected by the river development. Hydro Chairman Saunders presided and introduced the key dignitaries.

Thus ended some 33 years of negotiations on a project which is today the last major hydraulic source in Ontario within economic transmission distance of the province's largest load centres, and thus began the construction phase of one of the world's most unique power developments.

The \$600,000,000 power project will produce a total of 2,200,000 horsepower, to be divided equally between Ontario Hydro and New York State Power Authority, both of whom will share the cost of developing this tremendous power potential of a 35-mile stretch of the International Rapids section of the river. The project will involve construction of three principal structures, including the powerhouse, located between the eastern end of Barnhart Island and the Canadian mainland, three miles west of Cornwall, to accommodate the generating units; Long Sault dam, (referred to above), located between the western tip of Barnhart Island and the United States mainland, to divert the desired amount of water to the headpond, allowing, as necessary, excess amounts to bypass the powerhouse, and Iroquois dam, located at Iroquois Point near the Village of Iroquois, 25 miles upstream from the Long Sault dam, to permit regulation of the outflow of water from Lake Ontario.

### Huge Headpond

A headpond will be created above the powerhouse flooding a section of the

Canadian shore a distance of 35 miles. Approximately 16¼ square miles, affecting some 5,000 persons, will be inundated, including Iroquois, Aultsville, Farran Point, Dickinson Landing, Wales, Moulinette and Mille Roches, and one-third of the Town of Morrisburg.

Since April, 1952, Ontario Hydro crews of up to 100 men have been carrying out surveys, foundation investigations, studies and estimates in the International Rapids section. Much of this has been to recheck on information gathered in earlier major Hydro surveys carried out from 1913 onwards. Since 1913, Ontario Hydro has spent \$2,716,846 in exhaustive studies of the river and surrounding terrain. With these data, engineers have constructed and verified three hydraulic scale models of the river at A. W. Manby Service Centre, near Islington.

With an average river flow of 237,000 cubic feet per second, compared with an approximate average flow of 200,000 cubic feet per second on the Niagara River, a generating station on the St. Lawrence River is capable of producing more energy in relation to its installed capacity than any other power development in North America, if not in the world, based on the river's dependability of flow.

Initial power from the St. Lawrence development is scheduled for the fall of 1958, with completion anticipated during 1959. With an average annual output of 12,600,000,000 kilowatthours of energy (half of which will be Hydro's share), the new plant will provide an additional source of power for the Commission equivalent to 30 percent of the total kilowatthours of energy generated and purchased in 1953 from all available sources.



# RADAR TRAFFIC CONTROL



DISCUSSING a paper on transformer design, S. J. Pollock, Toronto Township, left, gives his interpretation of a "knotty" point to James Wickiam, East York; Andrew Hamilton, Forest Hill; E. J. Woelfle, Toronto, and H. R. McClymont, York Township, between sessions of final meeting.

**M**EMBERS of the A.M.E.U., Toronto Region, gathered at the King Edward Hotel, Toronto, for their "wind-up" session of the year — the annual business and dinner meeting. At the business meeting, held in the afternoon and chaired by H. R. McClymont, General Manager of York Township Hydro System and President of the group, the annual report was given by Secretary-Treasurer S. J. Pollock, Treasurer of Toronto Township Hydro-Electric Commission, and speeches were delivered by H. R. Osborne, transformer design engineer of the Ferranti Electric Company Ltd., and Inspector Albert Witts of the Ontario Provincial Police.

Mr. Osborne spoke on the two main sources of trouble in transformers connected in parallel, circulating current, and unequal division of current. He explained both phenomena in detail and illustrated his speech with circuit diagrams on a blackboard.

Inspector Witts drew the attention of his listeners to yet another use of electronics in every-day life—the trapping of speedsters by use of a radar-operated velocity measuring device. Preliminary tests of the apparatus have been completed and it will soon be placed in use on Ontario's highways as part of the police program to reduce the appalling traffic toll.

The evening banquet was followed by an informative address by L. G. McConnell of Atomic Energy of Canada Ltd., Chalk River.—by J. J. Kirkwood.

**TORONTO** Township Hydro-Electric Commission was represented at the A.M.E.U. Toronto Region's annual dinner meeting by, left to right: Engineer Don Holmes, Manager R. J. Starr, and Commissioner G. D. Pattinson.



E. S. McNEICE, Port Credit, seated right, handled registrations. With this Oakville trio, left to right: Russell Barlow, H. B. Lofquist, and Mayor L. McArthur, he proves it's possible to present the registration book for signature and to accept a registration fee at the same time.





# PRESS PRIZES

Hydro Honors Correspondents  
of Ontario Weekly Newspapers



MR. BLAY presents Honorable Mention Certificate to Miss Lucy R. Woods, left, Bayfield, in recognition of her "meritorious rural news report."



WEIR Grieve, right, receives the first Ontario Hydro "Award of Merit" plaque from J. A. Blay, Director of Information, during the annual convention of the Ontario Division of the Canadian Weekly Newspapers Association.


ONTARIO Hydro has honored the six most outstanding country correspondents of the province's weekly newspapers for the past year. The Commission, in recognition of the importance of the weekly press in the life of rural Ontario, presented a bronze plaque and certificates to one man and five women at the annual convention of the Ontario Division of the Canadian Weekly Newspapers Association in London.

The newly-established Hydro awards were offered for competition in a province-wide contest to determine the "Champion Country Correspondent." The winners were chosen by a panel of judges representing the association.

"The importance of country correspondents to weekly newspapers," Ontario Hydro Chairman Robert H. Saunders stated, "is found in the fact that such newspapers, which must service widely-scattered rural areas, rely upon their correspondents for news of far-flung communities. By presenting our first annual plaque and certificates, we are giving tangible recognition to those who are doing so much toward the develop-






**WINNERS** of the Ontario Hydro awards to outstanding rural correspondents of Ontario weekly newspapers, included, Miss Woods (seated) while standing, left to right, are Gerry Craven, Ridgetown; Miss Marjorie McArthur, Highgate; Herbert Campbell, Dutton; Mr. Blay, who presented awards; Miss Wilma Dinnin, representing the Clinton News-Record, and Weir Grieve, Tobermory.

ment and progress of the rural areas of Ontario."

The Chairman said that the large city daily, faced with the task of reporting world-wide news, must often overlook the more intimate day-to-day incidents which mirror the life of smaller communities. "This responsibility," Mr. Saunders continued, "is one which the country correspondent and his weekly newspaper have undertaken. Together they reflect and mould public opinion in a highly important part of the province by providing the rural areas with information of developments in their community and by interpreting world news events."

Top honors for "excellence in rural news reporting" were won by Weir Grieve, 70 years old, who for the past 30 years has been Tobermory correspondent of the *Warton Echo*. Mr. Grieve was the first recipient of the annual Hydro Award of Merit plaque which is inscribed as follows:

"To Mr. Weir Grieve, who has been selected by a committee of judges representing the Canadian Weekly News-

papers Association, in recognition of excellence in rural news reporting during the past year.

"Ontario Hydro conveys its congratulations and this award of merit for the quality and accuracy of work and informative portrayal of life and activity in the rural areas of the province, acknowledging thereby the influential role of journalism in portraying the progress and achievements of Ontario's industrious farm and hamlet population."

Certificates of Merit for outstanding rural news reporting went to Mrs. Percy McMullen, Mount Pleasant correspondent of the *Stirling News-Argus*, and Miss Marjorie McArthur, Highgate correspondent of the *Ridgetown Dominion*.

Miss Lucy R. Woods, Bayfield correspondent of the *Clinton News-Record*, Mrs. George H. Lidster, Port Talbot correspondent of the *Dutton Advance*, and Miss Agnes Yuill, Middleville correspondent of the *Lanark Era*, were presented with Honorable Mention certificates for meritorious news reporting. The weekly newspapers represented by the winners also received special certi-

ficates acknowledging "the influential role of the weekly press in portraying the progress and achievements of Ontario's industrious farm and hamlet population."

#### High Regard

James A. Blay, Hydro Director of Information, in presenting the awards, said that "we in Ontario Hydro have a high regard for the weekly newspapers of Ontario." He highlighted the current Hydro advertising program in the weekly press and the fact that the Commission, as of May 1 this year, was supplying power to 369,574 rural customers as compared to 156,560 in 1945.

Ontario Hydro's active interest in the weekly press was acknowledged by Jack Pickell of the *Paris Star*, President of the association which voted at the convention to change its name to the Ontario Weekly Newspapers Association. "Hydro," he said, "has been kind to us in many ways and we very much appreciate their giving this plaque and certificates to the best Ontario country correspondents."—by A. A. Bolt



# ALONG HYDRO LINES



## Build New Station To Handle Demands

Purchase of a site for a new transformer station has been completed by Stratford Public Utility Commission. To be built at a cost of some \$60,000, the new station will assist in meeting expanding industrial power demands. At a recent meeting, the local commission highlighted the value of radio-telephone equipment which had been installed in the commission trucks. Reference was made to a recent storm in the area in which these facilities played an important part in restoring service much more rapidly than if conventional means of communication had been employed.

## Brantford Township To Spend \$95,325

Ontario Hydro has approved an expenditure by the Brantford Township Hydro-Electric Commission of \$95,325 for extensions and improvements to the electrical distribution system in 1954, and for the construction of a new municipal distributing station during 1954 and 1955. Chairman Roy Pierson announced recently. The program will be financed from available funds and funds estimated to become available during 1954 and 1955.

## Midland P.U.C. Plans Renovations

Midland Public Utilities Commission plans to proceed with a \$12,500 renovation project at its Fourth Street property if Midland Council is unable to provide suitable office accommodation by the end of the year. The proposed work, which has been approved by Ontario Hydro, includes the building of office space and necessary changes in the pumphouse and meter rooms.

Also slated for a face-lifting is the Commission's reservoir area bordering Penetang Road. Trees and shrubbery will be cleared for a depth of ten feet alongside the road as a fire precaution and two man-made lakes, which have supplemented the water supply for the past three years, will be dredged to increase their capacity.

## Preston Increases Customer Deposits

Preston Public Utilities Commission has increased cash deposits required from new domestic Hydro and water consumers to \$10 for Hydro service and \$3 for water. Previous rates were \$5 and \$2 respectively.

It was explained that upon transfer of residence from Preston, tenants would be refunded their rental deposits. Also, should a tenant move from one residence to another in Preston, it would not be necessary to make another cash deposit since the utility would transfer the deposit to the new residence.

One of the reasons advanced in favor of boosting the rental rates was to eliminate much of the "skipping" practised by a small minority of tenants when payments on Hydro and water bills are in arrears.

## P.U.C. WORKERS INITIATE CLUB ROOM

HAPPY smiles were in evidence recently as the Galt P.U.C. Employees' Club held a social to celebrate the opening of their new club room in the top floor of the Hydro building. About 60 P.U.C. workers and ladies enjoyed euchre and square-dancing, later a luncheon. Gathered around the piano, with Bob Brooks at the keyboard, left to right seated: Firman McArthur, President George Whitfield and Jim Yeaman. Standing are Elmer "Pat" McFarlane and Ian Ferguson. All are on the Hydro Club's executive. Given space a short time previous, the employees did all work at their own expense and wrought amazing improvements. They have painted cement walls and floor, secured piano and chairs and tables and are highly enthusiastic. The room will be open several nights a week. For the official opening, a 4-piece, old time band supplied music.





## STRATFORD HONORS

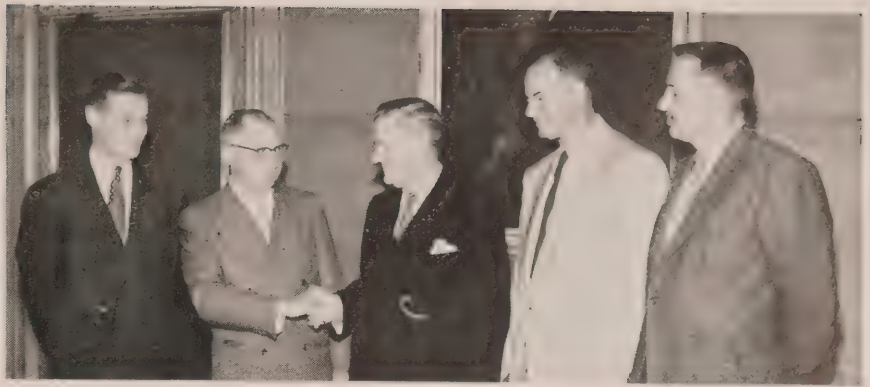
### LONG-SERVICE EMPLOYEES

SOME 128 members of the staff of the Stratford Public Utility Commission and their guests joined hands in the festivities of the annual dinner and social held recently in the local Y.M.C.A. The occasion, in the words of the P.U.C. Chairman A. R. Moore, provided "an opportunity to meet each other, understand each other, and enjoy ourselves together. It is also an opportunity for us to thank the employees of the public utility commission for their work and loyalty."

Two employees, John Justason and J. H. Wilbee, were welcomed into the Quarter Century Club of the P.U.C. by Vice-Chairman N. H. Siegel, (now deceased). The two, who joined the staff of the commission in 1929, were presented in gold watches.

Others who spoke were G. C. Parker, Consumer Service Engineer, West Central Region, Hamilton, (now retired), representing Ontario Hydro, and W. F. Nickel, local commissioner.

A varied program of entertainment was provided following the dinner. Commissioner Nickel proposed the toast to the ladies with some stimulating thoughts and witty remarks. Gifts were presented to all ladies present as a token of appreciation on behalf of male members of the organization. This, in turn, was followed by thanks and reciprocating remarks by Mrs. John Justason. A. B. Manson, Manager of the P.U.C., who was Master of Ceremonies, passed a draw box to some of the distinguished guests present. They picked numbers held by William Ellison, Mrs. Dorothy Diehl, Mrs. Clarence Wigglesworth, Mr. Wilbee and Harold Casson for handsome door prizes. In a more humorous vein, birthday cakes and "appropriate" gifts were presented to four members who had observed birthdays recently. These were Douglas Moore, John Wiggins, Martin Kant, and Malcolm McKenzie. A sing-song led by Miss Eva Hoffmeyer, with F. L. Merritt accompanying on the piano, followed. Laughter and applause were accorded the entertaining Paul Trio from Kirkton, who presented a variety show. Miss Vera Hoffman thanked the commission for the party on behalf of the staff.



CONGRATULATIONS are exchanged among this group which comprises, left to right: S. R. Walkinshaw, General Manager; Harry Thiess, Chairman, Orillia Commission; Hydro Chairman Saunders, Mayor John McIsaac and Commissioner Frank Tissington, both of Orillia.

## Orillia Joins Hydro Family

AT a recent meeting and formal signing ceremony in Toronto, the Town of Orillia officially became a member of the Ontario Hydro enterprise. In the presence of Ontario Hydro officials, the Chairman and members of the Orillia Water, Light and Power Commission, Mayor John McIsaac and Council representatives, Hydro Chairman Robert H. Saunders affixed his signature to the agreement which had been previously signed by Mayor McIsaac on behalf of the town.

Mr. Saunders informed the delegation that Ontario Hydro was greatly pleased with the outcome of the negotiations and extended to the citizens of Orillia a hearty welcome to the "Hydro family." He stated that Orillia had become the 321st cost-contract municipality, taking up its position as an active partner in the Hydro organization.

Mr. Saunders informed the meeting that Orillia's decision to join Hydro was a very important one. He emphasized that the Ontario Hydro Commission had refrained from taking any steps that might influence the vote of Orillia citizens in this regard. The Hydro Chairman stated that welcome news had been forthcoming while the Orillia negotiations were underway—the approval of the St. Lawrence power project.

On behalf of the Town of Orillia, Mayor McIsaac expressed his warm appreciation of the successful outcome of the negotiations. He said that Orillia representatives had received the utmost co-operation and assistance from Hydro at every turn, and he felt that the town

would benefit very considerably from its affiliation with the Hydro enterprise. Mr. McIsaac also extended his sincere congratulations to Mr. Saunders for his active role in making the St. Lawrence a reality, and best wishes to Ontario Hydro for every success in the future.

Hydro's First Vice-Chairman, Hon. George H. Challies, and Second Vice-Chairman, W. Ross Strike, also addressed the gathering. They reiterated Mr. Saunders' statements and added that the citizens of Orillia would never regret their important decision. The full co-operation of Ontario Hydro was extended to the Orillia Council and to the local commission members.

The ceremony was attended by Harry Thiess and Frank Tissington, local commission members; Stuart R. Walkinshaw and Harvey Bongard, General Manager and Secretary-Treasurer, respectively; Ald. William Brown; Morgan Payne, Town Clerk and Treasurer; A. W. Manby, Assistant General Manager-Administration; I. K. Sitzler, Director of Consumer Service, and J. A. Blay, Director of Information (Hydro).

### Vankleek Hill Hydro To Spend \$4,250

Ontario Hydro has approved an expenditure by the Vankleek Hill Hydro-Electric Commission of \$4,250 for extensions and improvements to the electrical distribution system in 1954, Chairman E. C. Brown stated recently. The program will be financed from available funds.





VARSITY'S famed School of Practical Science.

### Triennial Reunion

**E**XECUTIVE of the 1954 University of Toronto Engineering Alumni Triennial Reunion reports that plans are progressing on schedule for the big days of October 29, 30 and 31. Towards the end of September every member of the Alumni will be receiving personal news of the event together with an advance registration card assuring reservations for any or all of the week-end activities. One of the most popular events this year, judging by the 14 previous reunions, will be the dinner and dance on Friday night, October 29. The Engineering Alumni medals will be presented after the dinner. This is one of the highest honors attainable by S.P.S. graduates. It was first awarded in 1939 and has become a symbol of engineering achievement. This presentation will be an inspiring feature of a joyous evening among old friends and new acquaintances. Music for dancing will be under the batons of two of Toronto's outstanding orchestra leaders. One of the Royal York's spacious halls will resound to "music with a beat" for the younger crowd. The other will provide music in a slower tempo for those who prefer it that way.

### Present Water Heaters To Cobourg Customers

Hot water heaters owned by the Cobourg Public Utilities Commission and used by its customers, were given to these customers, free of charge recently. The local commission's decision to drop ownership of the heaters was made when it was found that the small revenue from renting the heaters did not meet the cost of maintaining the equipment.

## A.P.E.O. RENAMES BRANCH

**T**O accommodate the growing number of professional aeronautical engineers now serving Canada's expanding aircraft industry, the Ontario Association of Professional Engineers, has renamed one of its five engineering branches "mechanical, aeronautical and industrial," W. L. Sagar, P.Eng., President of the 12,000-member association announced recently.

Formerly the "mechanical and industrial" branch, Mr. Sagar said the change had been authorized by the Ontario Government. The association is established under provincial statute to license professional engineers in Ontario and administer legislation pertaining to the profession. Four other engineering branches are: civil, electrical, mining, and chemical and metallurgical, the latter comprising one branch.

## Study Atomic Power Possibilities

**A**T a meeting held in Ontario Hydro's Head Office, Toronto, June 15 this year, atomic electrical energy possibilities were discussed by officials of Hydro and Atomic Energy of Canada Limited. Participating in the meeting were William J. Bennett, President, Atomic Energy of Canada Limited; Dr. Richard L. Hearn, Ontario Hydro's General Manager and Chief Engineer (who is also a Director of the Crown atomic agency), and Hydro Chairman Robert H. Saunders.

Following the meeting, Mr. Saunders stated that there is no question in the minds of Dr. Hearn and Mr. Bennett that, providing it is decided to construct an atomic plant similar to the one being built in England at the present time, atomic electrical power could be available within three years.

Two main considerations are involved—first, the need for such power, and second, whether the type of plant to be built would follow the English installation. These two questions, and all pertinent technical considerations are now receiving close study. Within a few months a definite answer should be reached on the points in question. The Hydro Chairman expressed the opinion that the time being devoted to this important study would produce a great deal of valuable information during the period—all of which should help in speeding final plans.

Mr. Saunders has been invited to sit in as a member of a newly formed Advisory Committee on Atomic Power, which was recently announced by Rt. Hon. C. D. Howe, Minister of Trade and Commerce and Minister of Defence Production.



FIRST meeting of Canada's Advisory Committee on Atomic Power Development was held at Chalk River on July 7 and 8 this year. Hydro Chairman Robert H. Saunders and Dr. Richard L. Hearn, General Manager and Chief Engineer, represent Hydro on the committee. Group above includes, left to right: Denis Stairs, Dr. T. H. Hogg, Dr. Hearn, Dr. W. B. Lewis, L. A. Forsyth, W. J. Bennett, President, Atomic Energy of Canada Ltd.; Dr. C. J. Mackenzie; D. M. Stephens, R. B. Bryce, and H. H. Richardson. Back row, from left: Chairman Saunders, A. W. Finlayson, G. A. Gaherty, J. A. Fuller, J. W. Tomlinson, G. G. Gate, E. C. Fox, W. Kirkpatrick, Lt. Col. J. C. MacKeen, Dr. John Davis, J. L. Feeney, Dr. A. E. Grauer, Dr. Huet Massue, J. J. Deutsch and Dr. D. A. Keys.



## CONCLUDE AGREEMENTS

ONTARIO Hydro has concluded four more agreements concerning the manufacture of dual frequency equipment. The agreements—three negotiated with the Canadian General Electric Company Ltd., and one with the McKinnon Industries Ltd.—call for the production of dual frequency motors for sump pumps, oil burners, and clothes dryers. The companies are prepared to manufacture and sell these motors for use in 25-cycle areas of Southern Ontario.

The advantage of the dual frequency units is that they require only slight adjustment when the switch to 60 cycles is made. Net savings accruing to the Ontario Hydro in the remaining period of the frequency standardization program through the use of the motors covered by the new agreements are estimated at more than \$355,000. This will bring to a total of more than \$17,000,000 the overall economies anticipated to the end of frequency standardization through the use of dual frequency equipment of all kinds.

Under these latest agreements, C.G.E. will make dual frequency motors for oil burners, sump pumps and, for the first time, for clothes dryers. McKinnon Industries will manufacture a further quantity of oil burner motors in addition to those this company has already produced under a previous arrangement with Ontario Hydro.

Dual frequency appliances are available at the same prices as those operable only at 25 cycles, because the development and extra manufacturing costs are borne by the Commission. Production of dual frequency motors and equipment results from conferences and negotiations between Hydro and electrical manufacturers and their trade associations initiated by the Commission in 1948. As a result there are now available for sale in 25-cycle areas dual frequency refrigerators, oil burners and controls, fluorescent ballasts, clothes dryers, sump pumps, industrial motors, transformers and sundry items.

### Prescott Institutes System Improvements

Prescott Public Utilities Commission will spend a total of \$22,400 from available funds during the present year, on extensions and improvements to the town's electrical system.

### Rate Increase At St. Catharines

An increase in hydro rates for customers of St. Catharines P.U.C. became effective recently. The increase, which ranges at about 10 percent above previous rates, was approved by Ontario Hydro. In announcing the higher rates, the St. Catharines Commission said they were necessitated by increased cost of operation during recent months. The increase will affect domestic, commercial and power customers. The average domestic power bill will show an increase per month of about 45 cents, or a 90-cent increase on the two-month bill issued by the local commission. A decline in industrial consumption of power, due to shorter hours in industry, and a drop in industrial production, caused a reduction in Hydro revenue of some \$22,000 within the first six months of this year.



G. E. CHASE

Former Manager of the Bowmanville Public Utilities Commission who died recently. Mr. Chase, who retired last September, was honored at a testimonial dinner in February this year (Ontario Hydro News, April, 1954).



## CLOSE HARMONY

UTILITIES and electrical manufacturers work in close harmony to advance the cause of the Red Seal adequate home-wiring program across Canada. Above, left to right: J. E. Lionais, Quebec Hydro; M. J. McHenry, Ontario Hydro, who was re-elected Chairman of the Canadian Adequate Wiring Bureau, and L. E. Butters, Canadian General Electric Co. Ltd., Immediate Past Chairman of the Bureau, are shown in conference at the recent annual meeting held in Montreal where plans for an even wider adequate wiring program were approved.

Mr. McHenry announced that there are now six electric service leagues in Canada, operating in the provincial field, a parallel campaign to that of the national adequate wiring body. Leagues are functioning in British Columbia, Alberta, Saskatchewan, Ontario, Quebec and Nova Scotia. Others are in process of organization in other provinces. Participation in the program includes electrical manufacturers, electric service leagues, distributors and dealers, utilities and contractors in all parts of the country.





## HONOR CANADIAN HEROINE

**H**ONORING a Canadian heroine—Laura Secord—on the anniversary of her walk on June 24, 1813, special ceremonies were held this year on the evening of June 24 at the John DeCou Stone House, near St. Catharines, an historic site maintained by Ontario Hydro as a lasting tribute to one of the courageous figures of Canadian history. A highlight of the ceremonies, which included a motorcade retraversing Laura Secord's famed walk to warn British forces at DeCou House, was the planting of an oak tree in the garden fronting the historical house. Doing the spade work was A. S. Robertson, Manager, Ontario Hydro's Niagara Region, pictured left, assisted by Cecil Secord, centre, Niagara Parks Commissioner and a direct descendant of the famed woman. Looking on is Troop Leader John Ross, right, St. Catharines, who was among the many Boy Scouts who joined in the occasion.

### Oshawa Plans System Improvements

Oshawa Public Utilities Commission recently approved an expansion program for 1954, the total estimated cost of which is \$258,346. The greater part of the money will be spent on two additional 44-kv. substations at a cost of approximately \$117,929. Both substations will be designed for 3,000 kva. operation, suitable for future expansion to 6,000 kva. Line extensions will cost \$23,840, and alterations to the distribution system will cost \$92,536, including a line to the city's new sewage disposal plant. Other changes in the underground system and water heater control will cost an estimated \$24,041.

### Canada Best Ottawa Hydro Customer

Canada's Government is Ottawa Hydro's biggest customer by far, Stanley Lewis, Chairman of Ottawa's Hydro-Electric Commission said recently. Last year the Government's electrical bill for its Ottawa buildings was \$893,943. Next largest user was the City of Ottawa with an expenditure of \$344,917. By contrast, a Queen Street domestic account used only \$1.50 worth of power in one two-month billing. The largest private user of electric power was the United States Embassy which had a bill of \$226 for a two-month period. Largest commercial user was A. J. Frieman Ltd., with a bill of \$2,750 in one month.

## ANSWER TO PAGE 1 CONUNDRUM

**J**UST in case you didn't figure it out, the photograph on Page 1, which is upside down, shows how Ontario Hydro engineers successfully performed the ticklish operation of filling the first of the two, 5½-mile tunnels of the Commission's new Sir Adam Beck-Niagara Generating Station No. 2 recently. Contrary to what the layman might expect, water was allowed to enter the tunnel from the generating station end—exactly the opposite direction in which it will flow when the tunnels are finally in normal operation. First, the forebay and open-cut canal were filled with water. The water was prevented from entering the tunnel by eight stop-log gates, each 45 feet wide and eight feet high. The top two gates were removed, (part of one may be seen at the right as it hangs suspended from a crane ready for instant replacement in case of trouble), leaving the level of water in the canal six inches above the top of the third gate. Our photographer, standing on a wooden superstructure built over the end of the tunnel, obtained this shot as water began to cascade over the gate and down into the tunnel, which at this point rises at a steep gradient to join the canal. The two pieces of angle iron projecting above the gate were welded into place to provide air inlet breaks in the otherwise continuous curtain of water. Had this not been done, a vacuum might have formed on the inner face of the gates, exerting a negative pressure on that side of 14.7 lbs. per square inch over an area 48 x 45 feet, with possible disastrous results. The tunnel was filled from the "wrong" end to avoid the high "spouting" velocities, with possible damage to equipment, which would have been encountered had the filling been done by raising the 58-foot high sluice gate at the intake end of the tunnel. Simple wasn't it?



## SAGAR HEADS DOMINION ENGINEERS

ONE of Canada's foremost authorities on soil mechanics and construction materials, Professor William Lister Sagar, P.Eng., 57, of Toronto, has been elected President of the Dominion Council of Professional Engineers. He thus heads the "cabinet" which administers on a Canadian-wide level to the country's 30,000 registered professional engineers comprising civil, electrical, mining, chemical and metallurgical, mechanical and aeronautical branches.

As President he succeeds another well-known authority on soil mechanics, Dean R. M. Hardy, of Edmonton.

Prof. Sagar is also serving this year as President of the 12,500-member Association of Professional Engineers of Ontario, which is the largest provincial engineering body in the country. In addition to these capacities, he is Professor



L. to R., M. A. Taylor, Manager; D. W. Smith, retiring engineer, T. J. McNeil, Prescott P.U.C.

## VETERAN ENGINEER RETIRES AT PRESCOTT

THE last of the "originals," David William Smith, recently retired after 46½ years as engineer of the Prescott Public Utilities Commission. His successor, Thomas J. McNeill, presented the retiring engineer with a purse of money on behalf of the staff of the powerhouse and management. M. A. Taylor, Public Utilities Commission Manager, extended sincere thanks to Mr. Smith for his valued service and contribution to the community.

"Dave Smith's experience will not be thrown away altogether with his retirement, as he has agreed to help out in an advisory capacity whenever the commission or powerhouse staff requires ad-

vice or practical assistance," he said.

Mr. Smith voiced his regret that health conditions had made it necessary for him to terminate his services to the community. He entered the employ of the commission as powerhouse engineer on September 2, 1907, (Labor Day), when electric power was generated by a steam plant. Six years later, Hydro power was first "hooked-up," at which time Mr. Smith was promoted to the position of chief engineer and chief hydro-electric switchman.

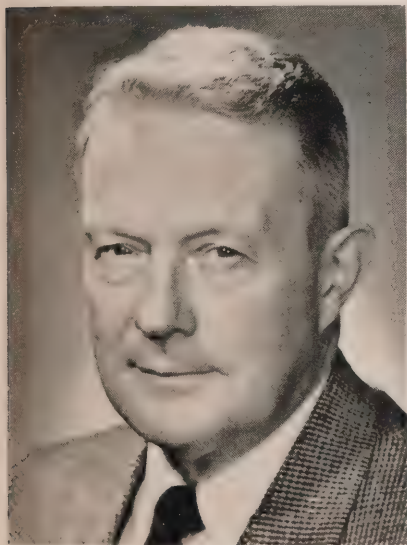
Under his guidance, the staff at the powerhouse has always been noted for the efficiency with which emergencies were handled.

more erudite vocation of testing and inspecting general construction materials. It was from this introduction that his interest in soil mechanics and foundations was fostered.

During the 1920's, he worked on the construction of such well-known buildings as Eaton's College Street store, and the Robt. Simpson Co. store in downtown Toronto; the addition to Toronto Elevators Ltd. on the waterfront, and also took part in the building of the Humber River bridge on the Western outskirts of the city. He has also served

as consultant on foundation projects to the Imperial Oil Co. refinery at Sarnia.

A veteran of both world wars, and holding the permanent rank of Lieutenant-Colonel in the R.C.E.M.E., he is also a member of the Engineering Institute of Canada; and is one of the oldest members in point of service of the Association Professional Engineers of Ontario — his membership dating back to January, 1923 (it was formed in July, 1922). He has been actively associated with its programs during the last eight years.

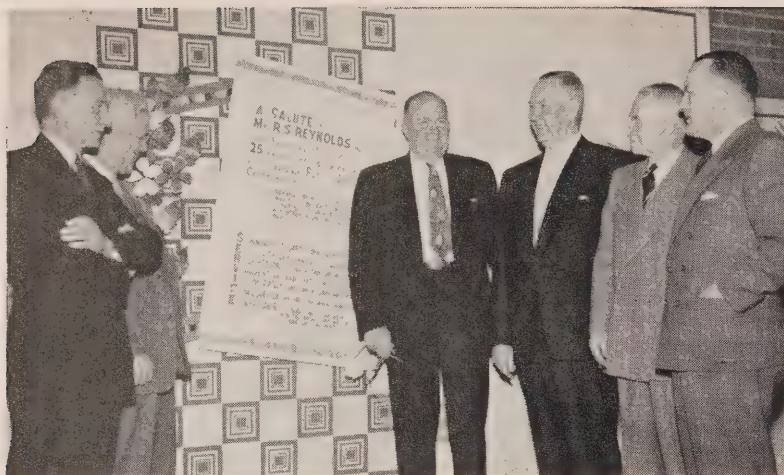


PROF. W. L. SAGAR

of Civil Engineering at the University of Toronto where he has been a member of the faculty since 1937; and previously had served there as a sessional lecturer. He also does private consulting work dealing with the building of large industrial plants, bridges and other structures.

During the earlier years of his career, he worked in the construction field as a contractor, and then went into the





## CHATHAM MANAGER OBSERVES 25-YEAR MILESTONE

**L**AUDED as a builder of "Hydro, hospitals and hockey," Roy S., "Smokey" Reynolds, genial Manager-Secretary of Chatham Public Utilities Commission, recently celebrated 25 years of outstanding service to that Western Ontario city at a dinner tendered in his honor by the Chatham Hydro Social Club. Several Ontario Hydro representatives, as well as municipal and local officials, were present to extend their congratulations, including the group in the photo on the left. This photograph includes, left to right, R. M. Laurie, Manager, Ontario Hydro's Western Region, E. R. Lawler, Consultant,

Toronto Region; Chatham P.U.C. Chairman Stanley G. Thomson; Mr. Reynolds, Dr. Richard L. Hearn, General Manager and Chief Engineer, and A. W. Manby, Assistant General Manager-Administration. In the photo on the right, Chatham Commissioner Tom Howard presents Mr. Reynolds with his 25-year button. Alfred J. Stevens with 24 years' service to the Chatham Commission, presented Mr. Reynolds with a plaque denoting: "the esteem in which you are held by us and all those with whom you are associated," on behalf of the 54 employees of the Chatham system.

### Name Streetsville Superintendent

Appointment of J. R. Mason, Collingwood, as Superintendent of Streetsville Public Utilities Commission was announced recently. Mr. Mason was formerly employed by the Comstock Corporation at Kitchener and by the James R. Kearney Corporation. He was at one time manager of Seaforth P.U.C., and also served three years with the R.C.A.F. doing radar and radio work. Married, the new superintendent is the father of three children.

## Classified Ads

### FOR SALE

**R**ENFREW Hydro-Electric Commission offers for sale a quantity of surplus material. The list includes wire, distribution transformers, street lighting transformers, surge absorber transformers, bus supports, steel feeder panels, disconnecting switches, A.C. generators, and one exciter. List is available from **J. H. Page, Manager, Renfrew Hydro-Electric Commission, Renfrew, Ontario.**

## APPOINT MANITOU PROJECT MANAGER

**O**NTARIO Hydro has announced the appointment of P. G. Campbell as Project Manager at the Manitou Falls development. His appointment follows a period at the site of this new English River project, and is of special interest in that he is the youngest project manager yet appointed by the Commission.

Born in Nova Scotia in 1921, Mr. Campbell gained his engineering diploma at St. Mary's College, Halifax, in 1941, and went on to Nova Scotia Technical College, graduating in 1943 as civil engineer. After more than two years' service with the Royal Canadian Navy, Mr. Campbell was employed by the Department of Mines and Resources as Surveys Engineer until February 1947, when he joined the staff of Ontario Hydro. His capabilities drew quick recognition, and from his initial position as junior engineer with the Hydraulics Section of the Generation Department, he was progressively made Assistant Divisional Engineer at Stewartville G. S.

in October 1947, Assistant Resident Engineer at Otto Holden G. S. (then known as LaCave G. S.) in March 1949, divisional field engineer at Toronto in 1952, and was finally sent to Manitou Falls as resident engineer in January 1954.

In his new capacity, Mr. Campbell's duties will be to promote field operations at Manitou so that all departments and organizations will operate harmoniously with the single objective of completing the development as expeditiously, efficiently and economically as possible. This will entail the management and co-ordination, in the field, of the work of all departments of the Commission, and of all contractors engaged in separate components of the project and the implementing and administration of plans, policies and procedures established by the Commission and responsible departments and organizations engaged in the work. (See page 34).



# BRIGHT FUTURE

**S**NAKE ISLAND, a picturesque Indian Reserve and summer resort community in Lake Simcoe, joined hands with the 20th Century recently.

On July 14 this year, some 3,200 feet of steel-armored underwater conductor rolled from a giant reel mounted on a windswept barge as an Ontario Hydro Construction crew carried out the laying of a submarine distribution line between the mainland (Island Grove) and the island.

Directed by J. W. H. Kerr, Sutton Area Manager, in conjunction with William Mackenzie, Ontario Hydro Construction Division foreman, the entire operation, covering a distance of approximately two-thirds of a mile, was completed successfully in less than a half-hour.

The barge left the island with the cable, towed by two boats piloted by veteran Lake Simcoe boatmen, Chief Lorenzo Big Canoe and Charles Johnston. Watching from the mainland, representatives of Ontario Hydro's Toronto Region and Construction Division, and interested rural operating area managers, applauded as the trip went off on schedule and without the slightest mishap. A wind had sprung up to make the "going" choppy, but there was excellent teamwork between the pilots and Bill Mackenzie, who stood on the barge directing operations. The barge landed exactly opposite the pole on the shore to which the cable was to be attached. The cable was buried in trenches at the shore on either side, and an eight-foot coil was allowed at each end to facilitate any needed repairs. Consisting of No. 2 copper with paper insulation and lead sheathing, the steel-armored cable has an overall diameter of 1.03 inches.

## Speedy Operation

It was a speedy operation for the Sutton R.O.A. crew, despite many difficulties. Last winter, crews transported



**INSPECTING** first bulb placed in early-style standard, from left are President Oliver Vokes, Snake Island Cottagers' Association; Mrs. Vokes, Association Secretary A. W. Burt, Jamie Clark, youngest islander, and Nancy Vokes. 75 of the residents have contracted for power.

materials for the distribution system over the ice from the mainland. Almost three miles of line were strung, together with the erection of 21 transformers and 145 poles. A violent storm early in June this year blew down many trees, but the Sutton crew quickly repaired the damage.

About 75 of the island's 135 cottagers, who lease their land from the Canadian Indian Affairs Branch (the island is still part of an Indian Reserve), had already contracted to take electricity by the time the cable was laid. Power was turned on within a week after the operation, bringing the advantages of electricity to an island which, although less than 50 miles from Toronto, had seen its cottages

lit by oil lamps and heated by wood stoves for the past 20 years.

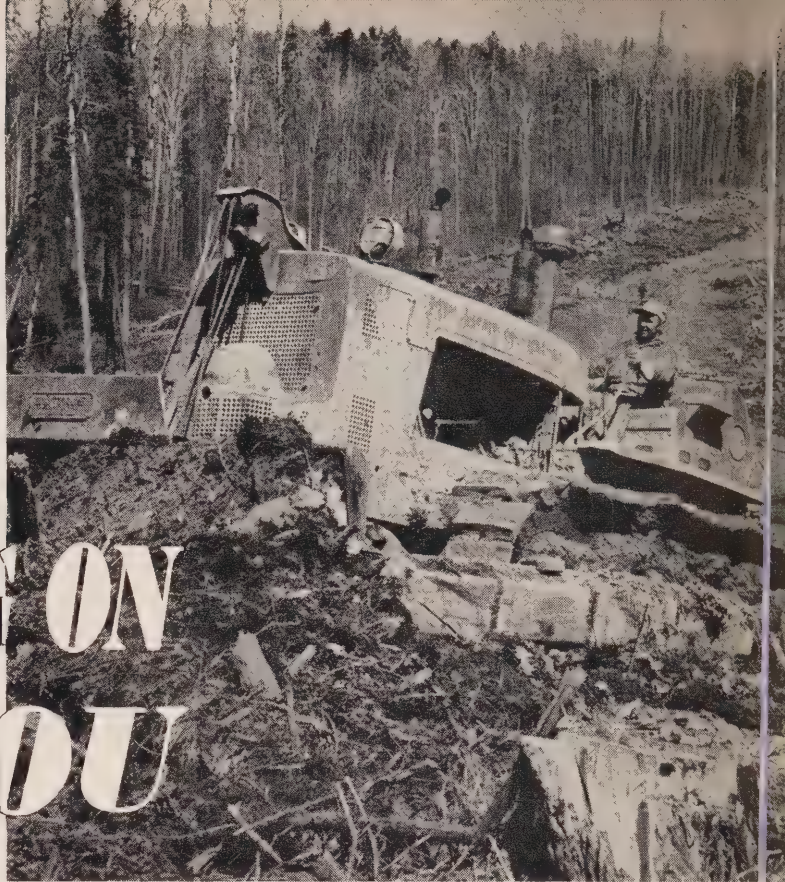
"It is a great thing that Ontario Hydro has done for us," said Oliver W. Vokes, President of the Snake Island Cottagers' Association, and an island resident for 20 years. "Bill Kerr and his Hydro workers from Sutton also deserve the highest praise for the manner in which the work has been done. I can tell you, electricity means a very great deal to Snake Island, and we're going to make the best possible use of it for lighting, refrigeration, cooking and the other things we can get with electric power. I want to say: 'Well done, Ontario Hydro!'" — by *Horace Brown*.

**POWER** was turned on within a week after cable-laying operation. Here Sutton R.O.A. line crew prepares to bury one end of the submarine cable in a deep trench on the mainland side.





HEAVY timber, mud and muskeg have been tough obstacles in building 12 miles of permanent access road from Highway 105 (near Ear Falls G.S.) to the site.



# MARCHING ON MANITOU

## Men and Machines Carving Out Another Major Power Project on the English River

**H**YDRO construction forces are busy these days with the job of building another impressive power project in Ontario's rugged northland.

Along the English River, some 1,400 miles northwest of Toronto and 75 miles northeast of the nearest town, Kenora, the Commission's 15th power development, Manitou Falls Generating Station, is being carved out of the "tall timbers."

### Diversion Channel

By the end of August, excavation of a channel to divert the English River from its centuries-old course over the swirling falls was finished; coffer-damming of the area above and below the falls was well-advanced, with preliminary work going forward on the 1,000-foot dam structure which will span the river at the falls.

At the same time, many of the buildings and facilities associated with the permanent camp at the site will be nearing completion to handle a peak work-force, which will be reached by next summer. To ease a rugged trans-

portation problem that has existed at the project since it was begun last October, some 13 miles of access roads from Highway 105 (near Ear Falls G.S.) to the project, will be completed in September to handle all types of vehicular traffic.

This large-scale activity has been accomplished in a little more than 10 months by Hydro construction forces—now totalling more than 500 men (plus another 100 on contract work)—under the youngest engineering team ever placed in charge of a new power development. None of the supervisory personnel on the job are over 35 years of age. Heading the group is Project Manager Pat Campbell who has been with the Commission since 1946 and has behind him the experience of working on the Stewartville, Otto Holden, and Sir Adam Beck No. 2 power projects.


Approved by the Commission last fall, (Ontario *Hydro News*, November-December, 1953), Manitou Falls G.S. is the 15th new power source in Hydro's huge program of expansion of genera-

tion and transmission facilities, begun in 1945. The new station, with an operating head of 55 feet, will have a dependable peak capacity of 56,500 horsepower in three units (with provision for one more). With the first three units scheduled for operation early in 1956, it will play a major role in meeting the continually growing electrical requirements of Northwestern Ontario. It is the most remote power project to be undertaken by Hydro construction forces in many years.

During the early stages of the project, especially, reaching the construction site from Toronto was something of a major feat in itself. The would-be traveller was likely to make the 1,400 mile journey involved in six stages: (1) by taxi to Malton Airport; (2) by plane to the Lakehead; (3) by rail to Dryden; (4) by car to Hydro's Ear Falls Generating Station on the English River; (5) by open boat for 18 miles down the English River to the "Portage"; (6) and, finally, through mud and muskeg by bulldozer to the construction camp.





 STEEL barge and Bailey Bridge platform were used in the floating of this 67-ton power shovel across a 570-foot wide stretch of water above main dam site to excavate diversion channel.

by Denis A. Heeney

The major initial task was, of course, to overcome as quickly as possible, the transportation problem. Men, building materials, food supplies and heavy machinery had to be transported to the site before work could begin. The problem was complicated by the fact that it was not feasible to build a road of any sort directly to Manitou Falls from the main supply point at Ear Falls G.S., near Highway 105. The link had to be made by first cutting a road through from the highway to a point on the river called Manitou Chute, four miles upstream from the Manitou Falls, then bridging the river at the Chute, and continuing a road through on the other side of the river to the site itself.

From late December and throughout the winter months, 20-ton bulldozers cut through the rock, dense brush and timber, muskeg and mud of the area to rush into service a temporary winter road. The first section of access road extended for about 8½ miles, from Highway 105 to Manitou Chute where a temporary camp was established until such

(Continued on page 35)

 UNTIL completion of the new access road, bulldozer and wagon were used to carry passengers on final leg of the journey to the site. Boat brings them from Ear Falls G.S. to this point.







MANITOU has youngest engineering team ever selected by Hydro to supervise construction, including Project Manager Pat Campbell, left, and Al. Jackson, General Construction Superintendent.

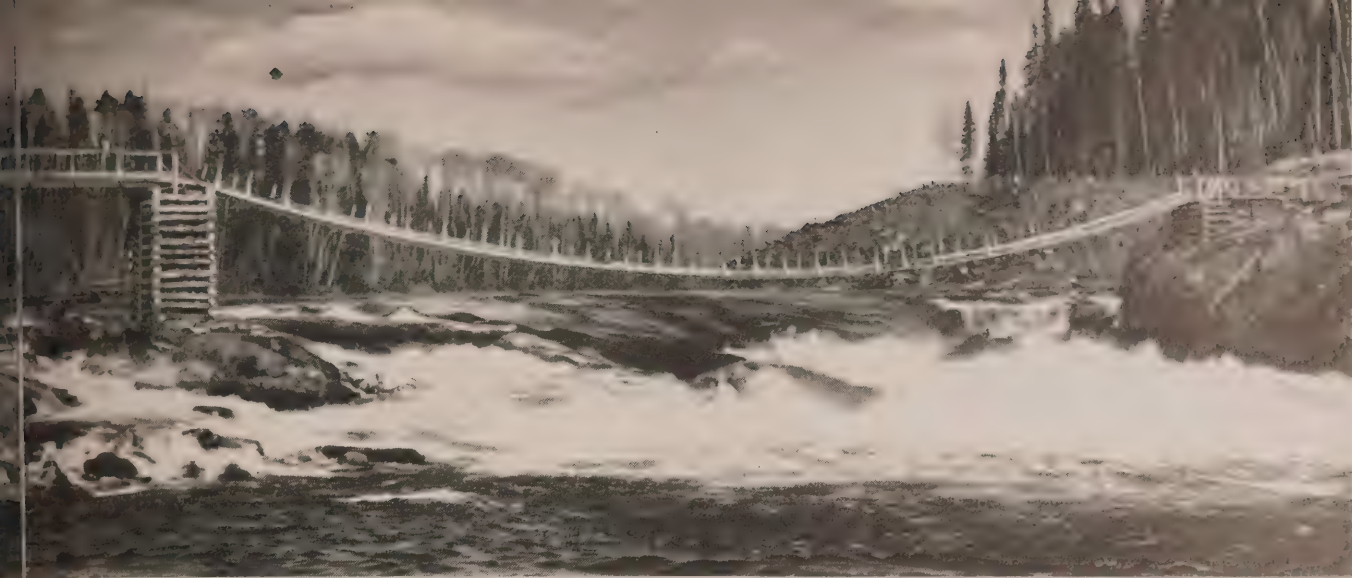


KNEE-DEEP mud at Manitou, while a hindrance, has not stopped work on new Hydro development.



PERMANENT camp to accommodate peak construction force of 600 men and store hundreds of tons of machinery turns the area into a miniature city. Group of prefabricated huts, upper right, were used for workers during initial stages.





**SUSPENSION** bridge, 190 feet long, spans Manitou Falls linking campsite and the diversion area. New development is located some 1,400 miles northwest of Toronto.

time as a main camp could be erected. Next, a Bailey Bridge, capable of loads up to 70 tons, was constructed across the river, just above the "Chute," and a further  $4\frac{1}{2}$  miles of winter road was put through to the site. On February 9, the first piece of heavy equipment for the project crossed the Bailey Bridge and by March 4 a temporary engineering office had been set up. Here, seven days later, Hydro construction men were served their first breakfast in a temporary cafeteria. In the evening, they sat down to a turkey dinner to celebrate three months of prodigious effort.

Until the spring break-up came, the access road was almost as busy as Southern Ontario's Queen Elizabeth Highway, from time to time, as trucks laden with supplies, power shovels, trailer camps, and Euclids rolled over its natural paving of ice and snow. Within a single six-week period, more than 3,000 tons of vital supplies were transported to the Chute camp and dam-site. It was a race against the approaching spring when higher temperatures were to turn the road into a sea of mixed mud and muskeg—often up to a man's knees. Despite these conditions, however, work continued on the permanent access road to the project. Its route largely parallels that of the winter road. During the critical period of the ice breakup, last spring, a Hydro helicopter stood by at Ear Falls G.S., where it could be contacted by radio-telephone to provide emergency transportation in and out of Manitou Falls.

For the past five months, the bulk of the work has been concentrated on erecting the permanent camp facilities and excavating the diversion channel which will divert the English River from its course over the falls, so they can be dewatered for construction of the dam and powerhouse. Early in May, the first bulldozers were floated across the river by barge from the camp to start on the overburden of the diversion cut. Though the falls is not spectacular in terms of drop, the flow of water over them is comparable to that flowing over the famous American Falls at Niagara. The diversion channel starts about 100 feet upstream from the falls and will taper from a 100 feet in width on the upstream end, to approximately 72 feet in width on the downstream end. A total of 28,000 cubic yards of rock and earth is being excavated to form it. When cofferdamming, above and below the falls, is completed by December the

sealed-off area will be pumped out, allowing work on the main dam to be carried out in the dry.

In the camp, the ring of carpenters' hammers and the high-pitched "whir" of power-saws goes on eight hours a day as the permanent camp facilities take shape to replace the temporary prefabricated units in use for several months. In July, the 600-man cafeteria began operation and by September, many other buildings are due for completion, including: a recreation hall, equipped with bowling alleys, billiard tables and table tennis; a 12-man hospital, with operating room, under Dr. Bruce Trewin; a two-room school, to accommodate 50 students from grades one to nine; a trailer camp, complete with running water, electricity and other services; and six, 80-men dormitories, including special living quarters for the female members of the catering and clerical staffs.

**PERSPECTIVE OF THE DOWNSTREAM SIDE OF MANITOU FALLS GENERATING STATION.**







MEMBERS of the Sub-Committee on Overhead Construction and Maintenance, left to right: J. F. McDiarmid, Hamilton; E. F. Burbank, and E. J. Woelfle, Toronto; E. M. Soden, Huntsville; T. J. Burgess, Ontario Hydro, and S. C. Webster, Tillsonburg, are seated at the speakers' table. Mr. Burbank gave the report of this committee in the absence of Chairman Gerald Lillie.



A.M.E.U. Committees Present Progress  
Reports at Annual Technical Conference

# SYSTEM STANDARDS

W. E. LOSIE, Assistant Director, Detroit Edison Company's Engineering Co-ordination and Services Department, explains use of new service bolt.





↑  
E. P. MUNTZ, P.Eng., Ontario Hydro consulting engineer, describes the Commission's research in use of prestressed concrete for poles.



↑  
BLUEPRINTS and photographs of installations and equipment are examined by, left to right: W. H. Phillips, Belleville; R. A. Coleman, Port Hope; W. E. Losie, Detroit Edison Company, guest speaker; O. H. Scott, Belleville, and J. P. Dawson, Dunnville, after Mr. Losie's address.

"THE FRONTIER DAYS are over in most parts of Ontario. In my opinion we should start to place more emphasis on underground distribution, especially in new subdivision construction. New techniques are being developed in the wide field of electrical distribution. The program committee of the A.M.E.U. are to be congratulated for the way they are bringing these advancements to you at these conventions. You can show your appreciation by your attendance and close attention at all of these sessions."

With these words W. Ross Strike, Q.C., Second Vice-Chairman of Ontario Hydro, greeted members of the Association of Municipal Electrical Utilities on the opening morning of their three-day Technical Conference at Bigwin Inn, Lake of Bays.

Mr. Strike's welcome followed the "keynote address" of A.M.E.U. President A. W. H. Taber, P.Eng., Fort William, who reminded the 323 delegates of the great urgency of setting municipal electrical standards throughout the province, and of the single aim of all electrical utilities—to provide the best possible service to the people of Ontario.

The conference was highlighted through

out by the animated discussion periods following the presentation of each paper, an accurate indication that members were attending in a spirit of inquiry and open-mindedness. Recordings were made of each speaker's address and the ensuing discussions. These will form the subject of papers to be printed and distributed later.

Program Chairman J. A. Williamson, P.Eng., Niagara Falls, further set the theme of the conference by elaborating on the need for standards. He pointed out that there are only five large cities of over 100,000 population in the 321 Hydro municipalities of the province. At the other end of the scale are numerous small rural communities. It is the central group, midway between these extremes, to which the utmost consideration must be given in the setting of standards.

First paper of the opening session, "The Progress in Ontario Hydro's Underground Studies," was presented by H. B. Muckle, P. Eng., Assistant Design Engineer, Distribution Department, Ontario Hydro. Mr. Muckle told his listeners that much research remains to be done, due to the general lack of experience in underground networks, and because such

a wide variety of conditions, each posing a different set of problems, are encountered in constructing underground lines.

#### Prestressed Concrete

Another feature of the first morning was a talk on "Research and Development of Concrete Poles," delivered by E. P. Muntz, P.Eng., Consulting Engineer, Ontario Hydro. Mr. Muntz spoke of the wide application of prestressed concrete in recent years and of the work done by Ontario Hydro in constructing and testing poles of this material. The primary advantage in the use of prestressed concrete, he pointed out, lies in its greater tensile strength and the consequent saving in bulk and weight. These factors, coupled with the elastic property which renders it crack-free at working loads, make it quite remarkable to those whose previous experience has been limited to ordinary concrete. Owing to plant requirements, Mr. Muntz said, in answer to a query during the discussion period, it is not at present economically possible for municipalities to build their own poles of prestressed concrete. However, he

(Continued on page 38)





R. E. JONES, Ontario Hydro, extreme left, gives his opinion on a cable sample to, left to right: E. G. Hammond and Charles Pearce, Port Elgin; A.M.E.U. President A. W. H. Taber, Fort William, and M. H. Howat, Arnprior, during a chat.

added, improved techniques may eventually overcome this drawback.

In the afternoon, members re-assembled to hear "A Guide to Substation Design" by N. F. Seymour, P. Eng., Consulting Engineer, Distributing Stations, Ontario Hydro. Mr. Seymour's paper was an addition to a previous one on the same subject given at the 1953 conference.

The program was concluded by E. F. Connolly, P. Eng., Assistant Planning Engineer, Ontario Hydro, who gave an illuminating talk on the question "What Size Should a Municipal Substation Be?"

Another feature was the report of the Sub-Committee on Overhead Construction and Maintenance, read by E. F. Burbank in the absence of Chairman Gerald Lillie, P. Eng., Distribution Engineer, Toronto Hydro-Electric System. Much is still required to make the text suitable and acceptable before it can be published for general use, Mr. Burbank said, and a great deal of editing and renumbering of rules will also be necessary. The report was followed by consideration and discussion of its various aspects and the following presentations by members of the Sub-Committee: "Maintenance of Poles," by E. J. Woelfle, P. Eng., Toronto Hydro; "Inspection Maintenance of Hardware, Crossarms, Pins, Etc.," by J. F. McDiarmid, P. Eng., Hamilton; "Inspection of Guys, Joints, Conductors and Sag," by T. J. Burgess, P. Eng., Ontario Hydro; "Clearance, Tree Trimming and

Rear Lot Construction," by Stanley C. Webster, P. Eng., Tillsonburg; "Transformer Cut-Outs and Arrestors," by E. F. Burbank, P. Eng., Toronto Hydro.

#### Electrical Problems

A distinguished guest from the Detroit-Edison Company, W. E. Losie, Assistant Director, Engineering Co-ordination and Services Department, held the attention of the Friday afternoon gathering with a talk on a wide variety of problems which recognize no international boundaries and plague electrical utilities equally on both sides of the border. Titling his speech "Pot Shots at Distribution," Mr. Losie outlined the steps taken by Detroit-Edison to relieve the demand for underground lines, adding that the main problem encountered was that of cost. Also dealt with in his talk were the means used to check above ground line rot in poles, a program to reduce tree-trimming costs, and methods used for connecting residential services.

Referring to the new hook-up between the Ontario Hydro and Detroit Edison systems, Mr. Losie said: "This is not merely an interconnection for the exchange of surplus power. It is also a symbolic link enabling us to get together with Ontario Hydro and exchange new ideas and techniques."

Food for serious thought was provided by Lieutenant Colonel A. A. Kennedy of Owen Sound, President of the O.M.E.A.,

second guest speaker of the day, who referred to the vital necessity of interesting university students in the field of municipal electrical engineering. There is a widening gap, he said, between the number of young men coming into the field, and the number of older men retiring. A positive and aggressive policy must be adopted without delay to bring the urgent need for their services to the attention of students, and to inform them of the opportunities offered by entrance into this phase of public service.

On Saturday morning, at the wind-up session of the conference, a survey of "Methods and Results in Reconnecting 25-Cycle Distribution Transformers for 60-Cycle Operation" was given by Wesley Armour, Superintendent, and W. G. Fisher, Assistant Superintendent, Windsor Utilities Commission. Introductory remarks to the paper were made by J. E. Teckoe, Jr., P. Eng., Assistant General Manager, Windsor U.C.

The final discussion came after R. E. Treen, P. Eng., Joint Use Engineer, Ontario Hydro, presented the proposed Bell Telephone Company contract.

Departing delegates were heard to express regret on only one count—the inclement weather which precluded outdoor activity and forced abandonment of the A.M.E.U. golf tournament, a feature which in past years has proven a welcome sidelight to three days of serious discussion.—By J. J. Kirkwood.





◀ **BEARING** the name of Listowel's veteran P.U.C. Superintendent, the new plant is the town's first municipally-owned substation.



🏠 **GUY** Parker, Ontario Hydro engineer (now retired), congratulates R. B. Hanna after unveiling plaque in Mr. Hanna's honor. Group, left to right: Rev. R. B. Geelhaar, T. J. Moffat, Mr. Parker, Mr. Hanna, Mayor O. M. Nickel, Major E. M. Creighton, A. D. Park, John McMichael.

# HOME-TOWN HONORS

**Listowel Names New, \$50,000  
Substation After Superintendent**

**T**HE straight, slim man beamed modestly as he shyly accepted the applause of his friends and fellow-citizens of Listowel.

He was R. B. (Bob) Hanna, Superintendent of the Listowel Public Utilities Commission since 1921. The occasion was the dedication of Listowel's new \$50,000 substation, which the Listowel Commission had named the "R. B. Hanna Substation," in recognition of his faithful and able performance of duty over the years.

More than 75 guests, representing all walks of life in the growing and friendly community of Listowel, watched as Guy Parker, Ontario Hydro's Consumer Ser-

vice Engineer, West Central Region, Hamilton (now retired), unveiled the plaque attached to the switchboard of the new plant. Designed and built by Ontario Hydro's engineers and construction men, the transformer and facilities are located at the rear of the town's handsome brick pumping station. This 3,000-kva. plant is Listowel's first municipally-owned substation.

"This is an occasion of which we, as commissioners and members of the municipality, are extremely proud," said Major E. M. Creighton, Chairman of the Listowel P.U.C., and a member for the past quarter-century. "We feel our citizens will agree with the commission

that naming our substation the 'R. B. Hanna Substation' is a most proper thing to do."

In unveiling the plaque, Mr. Parker said he had known "Bob" Hanna for 24 years, and had enjoyed the privilege of working with him for the benefit of the citizens of Listowel. He felt Mr. Hanna had done a fine job, and was deserving of every honor paid him.

The plaque bore the names of the commissioners: Major Creighton, Mayor O. M. Nickel, T. J. Moffat, A. D. Park, and John McMichael. Dedication ceremonies were conducted by Rev. R. B. Geelhaar of Listowel.

In reply, Mr. Hanna said he felt everyone in Listowel would be proud of the new substation. It was built for facility of operation, and for many years of efficient service.

## Loyal Staff

"My staff has made this honor possible," he told the gathering. "I have had a loyal and co-operative staff since 1921."

In thanking Ontario Hydro for its constant support, Mr. Hanna said he wished to particularly thank Mr. Parker for his part in the construction of the station. He was most grateful, too, to the commission for the honor it had bestowed upon him.

A most enjoyable feature was the dinner at the Royal Hotel, Listowel, following the dedication ceremony. Present were members of the town council, ex-mayors and their wives, ex-commissioners of the P.U.C., the staff of the Listowel P.U.C., and out-of-town guests.

Mr. Parker referred to the development of Hydro as one of the "most dramatic events in Canada since Confederation."

Other speakers were W. R. Mathieson, Secretary of the A.M.E.U.; Thomas Scott, Ontario Hydro's Consumer Service Superintendent, West Central Region, Hamilton, and Horace Brown. Mr. Hanna introduced each one of his staff to the gathering.

Mementoes of the occasion were presented to Mrs. Hanna, and to Miss Eileen Ament, Secretary-Treasurer, and Mrs. Bev. Weber, of the P.U.C. staff.  
*by Horace Brown.*



◀ OPERATOR is removing copper electrode after gluing hockey sections in unique electric gluing machine altered in Breslau factory.



Standardization operations in Kitchener district reveal many novel electrical devices in use

# Changeover Curios

by Frank C. Wood



CURIO collectors should follow Hydro changeover crews around for a few days if they want to see some ingenious electrical applications.

The Commission's standardization program, in Kitchener and other Waterloo County municipalities, brought to light some unusual frequency-sensitive equipment.

An appliance used to grind and mix medicinal powders is reputed to be the only machine of its kind in the world. It was designed and built by Arno Koegler, a Doctor of Naturopathy at Waterloo. Dr. Koegler began work on his machine in 1932, and after three months' planning and experimenting he produced wooden patterns from which castings were made in a foundry.

This medicine machine simultaneously grinds and mixes three bowls of powder. It does a very efficient job too, which is fortunate, as the powder has to be ground fine enough to be assimilated into the patient's system. Dr. Koegler finds the machine does better work in five minutes than can be done by hand in two hours.

## Likes Changeover

Although the appliance itself is unusual, changing it over for 60-cycle operation presented no problems. Two ¼-horsepower, 25-cycle motors merely had to be replaced by 60-cycle motors and belts, pulleys and gears changed. Dr. Koegler reports that this equipment is operating even more smoothly since was altered.

Another favorable aspect of changeover for the Doctor is the fact that he has been able to obtain certain equipment made only for 60-cycle operation, including a new electronic disease-detection device.

## Electronic Gluer

Another novel frequency-sensitive item was encountered at the Breslau plant of Breslau Wood Specialties which use among other numerous appliances, an electronic machine for gluing sections of hockey sticks. The hockey stick sections are brushed with glue, then three sets

◀ DR. ARNO KOEGLER, Waterloo naturopath demonstrates frequency-sensitive machine he designed to grind and mix medicinal ingredients to fine powder in one operation



two are placed side by side under a copper electrode. In a matter of seconds the parts are so firmly glued together that it is impossible to break them apart by hand.

John J. Clark, owner of the plant, states that the machine can glue six hockey stick heels in two minutes, whereas the operation used to take eight hours in gluing clamps. This saving of time is important, because Canada's national pastime creates a demand for all the hockey sticks the firm can produce.

The machine was made by the Elec-

tronic Devices Co. of Toronto and standardization, which was effected by Ontario Hydro technicians, involved changeover of a ¼-horsepower motor, resistors and transformers.

#### Elechair Altered

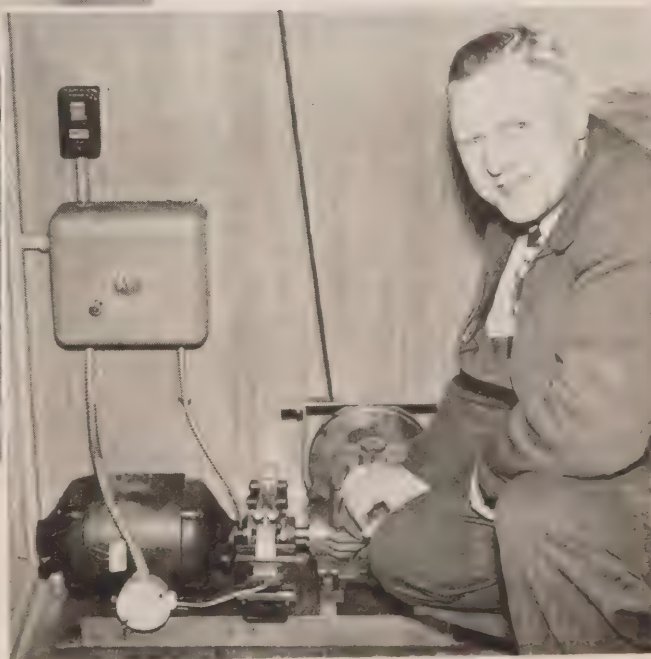
Perhaps the most unique, however, was the "elechair" at the Bullas Glass Limited building in Kitchener. Mrs. Viola Yanke has been a valued member of the staff of this company for 25 years, and is now Treasurer. Some years ago Mrs. Yanke began to suffer from

arthritis, and although she is able to walk on level ground, it is impossible for her to walk up or down stairs. J. Humphrey Bullas, proprietor of the company, pondered on a method that could be used to circumvent this situation. He had heard of "elechairs" and decided to provide one for Mrs. Yanke which would enable her, without trouble, to reach her second-floor apartment, situated above the firm's offices.

The services of "Buzz" Moore of Preston were enlisted, and he designed the wire-cable and pulley system by which the elechair is operated on the side of the staircase.

For this purpose Mr. Moore made use of three lengths of aeroplane cable with a breaking strength of 8,200 pounds. The chair itself was built by Arthur Niergarth of Kitchener, and is so designed that it can be folded flat against the wall when not in use.

Power is provided by a ½-horsepower reversible motor, with a reduction gear and an electrically-controlled brake. In the unlikely event of the cables snapping, the chair would be stopped by the automatic action of the powerful braking system. The 5-way wiring system permits the chair to be brought from the top of the stairs by pressing a switch at the bottom, and vice versa. This is very useful for transporting parcels. Another feature of these elechairs is their ability to go around corners if the necessary track is installed.



J. H. BULLAS, Kitchener industrialist, in photo, right, shows reversible motor altered for 60-cycle operation. Motor furnishes power for elechair, above photo, which Mrs. Viola Yanke and Joseph Bullas are using to mount stairway.









ONTARIO HYDRO

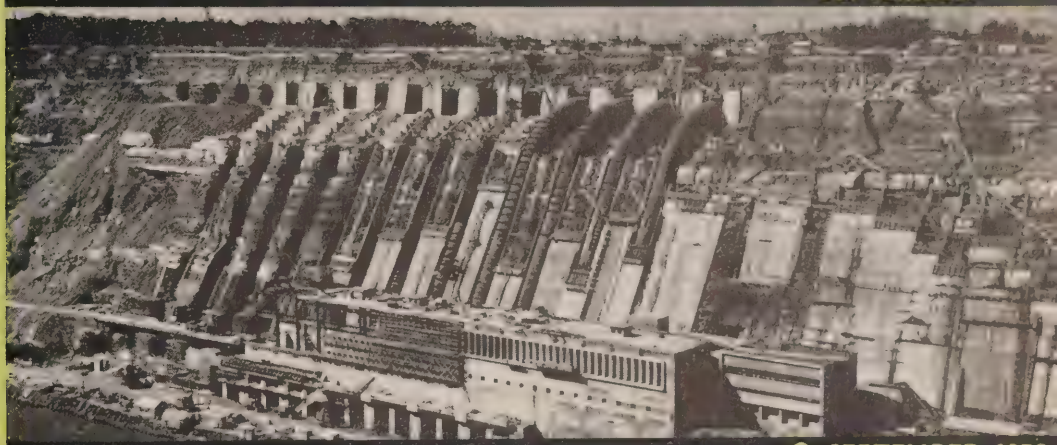
# News



▲ AUGUST 1951



▲ SEPTEMBER 1952



▲ SEPTEMBER 1953



New Sir Adam Beck-Niagara  
Generating Station No. 2, of-  
ficially placed in operation  
on August 30 this year.

SEPTEMBER

1954



# ONTARIO HYDRO

SEPTEMBER, 1954

Vol. 41

No. 89

Published by

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO  
620 UNIVERSITY AVENUE, TORONTO



## LOOKING TO THE FUTURE

**T**HIS MONTH we chronicle, with pride, the official opening of the Commission's 1,828,000-horsepower Sir Adam Beck-Niagara Generating Station No. 2.

It is fitting that this crowning achievement of Ontario Hydro's nine-year expansion program should have been formally launched on its career of service by Her Royal Highness The Duchess of Kent—the first member of Canada's Royal Family to officiate at such a ceremony in Ontario.

It is equally fitting that this, the largest of all Commission generating stations to date, should bear the name of Ontario's "Father of Hydro." A few years ago the adjacent, and now-interconnected Queenston-Chippawa development (built during the Hydro knight's tenure as first Chairman) was redesignated as the Sir Adam Beck-Niagara Generating Station No. 1.

In perpetuating his name in such a manner, the Commission is paying a lasting tribute to the memory of that "figure of commanding personality," as Her Royal Highness described Sir Adam in her address at the opening ceremonies on August 30 this year. For it was Sir Adam Beck, in company with other men of vision, such as the late Daniel Detweiler and E. W. B. Snider, who spearheaded the campaign for a publicly-owned electric system in Ontario at the beginning of the present century.

Despite bitter antagonism and opposition, Sir Adam saw his dream become a reality when Hydro power was first turned on at Berlin (now Kitchener) in 1910. In that significant year, Hydro's primary power requirements were only 5,400 horsepower. Today, electricity is regarded as one of the most indispensable ingredients of modern living. By 1953, Hydro's primary load requirements had reached 4,675,200 horsepower.

In the light of this great increase, it is readily understandable why the Commission requires projects of such magnitude as the new Niagara development and its share of the hydro-electric resources of the St. Lawrence River's International Rapids section.

Even with the full share—1,100,000 horsepower—available from the St. Lawrence project, it is estimated, at present, that power from this development will be fully absorbed by 1961. In conformity with the Commission's desired objective of building up a 10-percent margin of reserve capacity, the engineering staff is conducting a never-ending search for new sources of generation to meet the power demands of a decade and more hence.



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SUBSCRIPTION: \$2.00 PER YEAR

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Port Arthur Manager Retires \_\_\_\_\_  
Certified Worthwhile \_\_\_\_\_  
Sanctuary Standardized \_\_\_\_\_  
New Technique \_\_\_\_\_  
Along Hydro Lines \_\_\_\_\_

## COVER SHOTS

Saluting the large labor force engaged on the 1,828,000-horsepower Sir Adam Beck-Niagara Generating Station No. 2 project, our front cover, this month, traces the various stages of powerhouse construction from 1951 to 1954.

Equally spectacular was the job of excavating and concreting the twin, 5½-mile tunnels under the City of Niagara Falls for the Commission's largest power development shown on the back cover.

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*H.R.H. THE DUCHESS OF KENT, C.I., G.C.V.O., G.B.E.*

# ROYAL VISITORS



*H.R.H. THE PRINCESS ALEXANDRA OF KENT*

*Only daughter of The Duchess of Kent and The late Duke of Kent, who accompanied Her Royal Highness on the visit to Canada last month during which The Duchess of Kent formally opened the Canadian National Exhibition in Toronto and Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2.*

**H**ER ROYAL HIGHNESS Princess Marina The Duchess of Kent, who officially opened Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2 on August 30 of this year, was born in Athens on 13th December, 1906, youngest daughter of Prince Nicholas of Greece. For many years she has had affinities with the country which has become her home, for she and her two sisters were brought up by an English lady, Miss Fox, nurse and governess and friend of the family. Princess Marina visited England several times as a child and young girl.

Before she had grown up, she had known exile twice, first during the 1914-18 war, when the Greek Royal Family had to leave their country and seek refuge in Switzerland, and again after that war. This time Prince and Princess Nicholas moved to Paris, where they lived near the Bois de Boulogne. Princess Marina attended a finishing school, continued her study of languages,—she was already an accomplished linguist—and took a prominent part in school performances of classic French drama.

Prince Nicholas was an artist of repute who exhibited in France and England; his daughter inherited his talent, studied painting and visited art galleries and exhibitions, and has herself shown work at exhibitions of amateur art. One of her specialties is sketching in crayon.

She also helped her mother in her many activities. Princess

*(Continued on page 23)*





HYDRO Chairman Robert H. Saunders looks on as Her Royal Highness The Duchess of Kent brings the ceremony to a climax by pressing a button to formally place the station's first three units in operation.



TWO control gate structures, each 77 feet high, mark the locations of the two intakes, two miles upstream from the Horseshoe Falls, for the new 1,828,000-horsepower station. First intake, lower centre, is now in operation.

# FROM QUEENSTON'S CLIFFS

## ***H.R.H. The Duchess of Kent Formally Inaugurates Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2***

**T**HE TOUCH of a Royal hand — the steady hum of three massive generating units — a glowing backdrop of lights — the enthusiastic applause of a large audience — thus did Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2 officially take its place in the Commission's ever-growing system.

That was, in essence, the focal moment of the impressive ceremony attending the formal inauguration of Hydro's largest hydro-electric station by Her Royal Highness The Duchess of Kent on August 30.

Climaxing some three and one-half years of record construction activity, featured by several significant examples of engineering genius, the ceremony was a unique tribute to the Duchess and her daughter, Her Royal Highness The Princess Alexandra. It was, too, a heartening manifestation of keen public interest in the greatest power development Hydro has built in its 48-year history. Symbolically enough, the ceremony took place in the midst of a drenching downpour of rain (which Chairman Robert H. Saunders jocularly described as one of the

main sources of hydro-electric power), yet the large audience remained undaunted to witness the entire ceremony.

Against a picturesque background of trees, the inauguration event took place near the Commission's celebrated floral clock (the largest in the world). Also serving as a dramatic backdrop were the towering bulk of the screenhouse serving the older Sir Adam Beck-Niagara Generating Station No. 1, and the forest of lines and high tension transmission towers of the new switching yard where the combined output of the two, world-famous generating stations is fed into the electrical arteries of power-hungry Ontario.

### **Key Dignitaries**

Some 48 key dignitaries, including Princess Alexandra, Lady Rachel Davidson and Lady Moyra Hamilton, ladies-in-waiting to the Royal visitors; Hon. Leslie M. Frost, Prime Minister of Ontario and Hydro Chairman Robert H. Saunders were present on the flag-draped ceremonial dais for the ceremony. Also attending were many leading government, municipi-

pal, and Hydro representatives, among whom were Hon. Charles Daley, Provincial Minister of Labor and Chairman of the Niagara Parks Commission; Hon. George H. Challies and W. Ross Strill, First and Second Vice-Chairmen, respectively, of Ontario Hydro; William Hou and Arthur Jolley, Federal and Provincial members of Parliament, respectively, for the Niagara area; Colonel A. A. Kenney, President of the Ontario Municipal Electric Association; A. W. Taber, President of the Association of Municipal Electric Utilities; and G. Russell Harvey, Canadian Director for Organization, American Federation of Labour.

Ontario's central position, and energy of its people, have combined to make it a "most vital manufacturing area," the Duchess stated during her brief address. Immensely rich in natural resources, the province's situation on the great lakes and the St. Lawrence River gives it an additional advantage, and can fairly claim a large share of the stretches of water which amount to more

*(Continued on page 4)*





INTRICATE network of open-cut canals leads water to the new powerhouse, lower left, and to its 1921 partner, shown on the right.

AERIAL photo depicts a vital section of the Niagara district including: A—intakes of Sir Adam Beck-Niagara Generating Station No. 2 and the dotted lines showing location of the new station's twin, 5 1/2-mile tunnels; B—Horseshoe Falls, right, and American Falls, left; C—the Whirlpool; D—one of new project's two work areas; E and F—No. 2 and 1 stations respectively; G—new switchyard; H—Floral clock; I—the 2 1/4 mile open-cut canal; J—Queenston project camp (one of three); K—exit portals of twin tunnels into power canal, and L—the new pumped storage area of the new development which will contain 650,000,000 cubic feet of water when in operation in 1957.







A GLOWING backdrop of lights and a revolving wheel symbolize Hydro's unique role in the growth of Ontario and Canada while the large audience stands at attention following the naming of the station.

than six percent of Canada's vast territory.

"It is water power that has made the greatest contribution toward the tremendous expansion which, since the beginning of the century, has transformed the province from a largely agricultural to a thriving industrial community."

The importance of power was not so widely-recognized as it is now, she reminded her audience. It was left to the courage and determination of a few enlightened men to lay the foundations of a scheme which would render Ontario independent of fuel supplies from outside, thus enabling it to achieve its present position of prosperity.

#### Enthralling Story

Displaying a keen knowledge of Ontario Hydro history, Her Royal Highness described it as "an enthralling story." Out of the difficulties and the developments which followed its constitution, emerges "a figure of commanding personality, Sir Adam Beck, whose rare vision and outstanding quality of character must, I think, have been largely responsible for the ever-widening activities of the Commission.

"I feel sure that you could have made no better and no more appropriate choice in naming this great new power station after him, and I am very pleased to think that, in asking me to open it, I shall be associated with a development which would have given him the greatest happiness."

The Royal guest of honor also paid tribute "to the dynamic vision of the Commission's Chairman, Mr. Saunders—a worthy successor to Sir Adam Beck; to the Chief Engineer, Dr. Hearn; and to the veritable army of engineers, technicians and workers, all of whom must feel great pride in their contribution to a scheme which will be of such immense benefit to the community as a whole."

Introducing Her Royal Highness, Ontario's Prime Minister, Hon. Leslie M. Frost, recalled that this new development was but one of many which have succeeded in more than doubling Ontario's power resources in the past eight years.

Here, in this project alone, is an investment in Ontario's future of some 350 million dollars, the Premier continued. That 80 percent of the large public investment in Ontario Hydro's expansion over the past eight years has come from Canadian investors through Canadian money markets is a cause for great satisfaction as a very real Canadian achievement.

#### Canadian Skill

Discussing the romantic history that surrounds the Niagara region, Ontario's Prime Minister said that the skills of the men and women who had come to this area had been woven into the Canadian pattern.

"Here, today, at this historic spot, we are about to open a plant—a marvel of engineering construction. The waters of

the river are taken from above the fall and carried through two great tunnels—in fact, rivers in themselves—for five miles beneath the City of Niagara Falls to this point where the waters fall over the cliffs of Queenston to generate a million and more new horsepower of electrical energy for Ontario. This feat of construction is the result of the skill of Canadian engineers and workmen."

In extending a welcome to The Duchess of Kent and Princess Alexandra, Premier Frost assured his Royal listeners of a "affection and regard for what we like to term as 'old land,'" and of "the high and fundamental value we place on our association and membership in the worldwide family of nations, presided over by our Queen—a true world commonwealth which we regard as a vital factor in the peace and understanding for which we strive."

Presiding at the ceremony, Hydro Chairman Saunders said the new station "will stand as a monument to the effort of our labor force, numbering 7,600 people, to our engineers, and to the great spirit of co-operation which has been exemplified on this project."

#### International River

It should be remembered, he continued, that although the Niagara River has played a significant part in the history of Ontario Hydro and the province, it is an international river.

Through the untiring efforts of Ca



GUARD of Honor representing the large labor force of 7,600 men and women who worked on the project was inspected by The Duchess of Kent and her daughter, Princess Alexandra.



CHAIRMAN Saunders, left, escorted Princess Alexandra and The Duchess on a visit to the new powerhouse where they were greeted by A. S. Robertson, Manager, Niagara Region, and Niagara Project Manager William Fraser. They are inspecting one of the new generating units.



SIR ADAM BECK

First Chairman of the Commission and now known as the "Father of Ontario Hydro," whose illustrious name is perpetuated in the new development and its 1921 predecessor.

ada's Prime Minister Louis S. St. Laurent, Prime Minister Frost, Rt. Hon. C. D. Howe, and Hon. Lester B. Pearson, the Niagara Diversion Treaty between Canada and United States was ratified on October 10, 1950 "permitting Ontario Hydro to begin actual construction of this giant construction two months later."

Paying tribute to the labor force, consisting of groups representing as many as 24 nationalities, including Canadians from every province, Mr. Saunders said "it is significant, I believe, that these people were able to work as one united team regardless of nationality, color or religion. It is also worthy of note that this great work force carried the job forward without losing a day through strike action."

Contractors and suppliers who had played a part in placing the new structure in service several months ahead of schedule also drew the Hydro Chairman's praise.

Mr. Saunders warmly commended the endorsement and support of the O.M.E.A. and A.M.E.U. representing the Hydro municipalities of Ontario; his Commission colleagues, Hon. George H. Challies and W. Ross Strike, and the 900 professional engineers of Ontario Hydro, including Dr. Richard L. Hearn, General Manager, and Chief Engineer, and the Assistant General Managers, Dr. Otto Holden, and A. W. Manby.

Also cited for their untiring work were: Gordon Mitchell, William Fraser,

*(Continued on page 4)*



William Hogg, Frank Dobson, G. D. Floyd, J. R. Montague, E. T. Ireson, Bruce Black, O. E. Johnston, J. B. Bryce, L. J. Gallagher, C. J. Robbins, William Taylor, Kenneth Knights, "and many others of whom we are extremely proud."

And so the ceremony moved toward its final climax as The Duchess of Kent pressed a small button in a panel at the front of the ceremonial platform. As she did so, special amplifier equipment picked up the operating hum of three, 100,000-horsepower generating units in the huge powerhouse nestling at the foot of nearby, 300-foot Niagara gorge, a large wheel on the rear wall of the platform began to revolve, while lights on the platform backdrop illuminated the name of the new station and spelled out: "More Power for a Greater Ontario," and "More Power for a Greater Canada," thus symbolizing Hydro's role in the growth and progress of the province and country.

### Memorial Plaque Unveiled

Following the official opening ceremonies, members of the official party proceeded to the new reception centre—located between the headworks of the two Sir Adam Beck stations—where Her Royal Highness reviewed an "honor guard" of 19 construction workers from the project, as a tribute to the thousands of construction men who have been engaged on one of the most complex engineering jobs ever undertaken in Canada. Afterwards, the party descended 244 feet in a recently-completed elevator to a 300-foot long tiled access tunnel to the top floor of the powerhouse. A second elevator carried them to the operating floor of the huge new powerhouse where they inspected the three units already in operation. Returning to the reception centre, Her Royal Highness unveiled a memorial plaque at the entrance to the new building honoring the names of the men who had contributed to the building of both the important stations which permanently pay tribute to the memory of Sir Adam Beck "The Father of Hydro," and first Chairman of the Commission from 1906 until his death in 1925.

Thus, Hydro formally placed its largest hydro-electric plant "on the line," looking proudly to the day when the new station can deliver its full output of 1,828,000 horsepower (with 16 units and the pumped storage scheme functioning), whence it will attain its proper rank as one of the top hydro-electric plants on the North American continent. ►



⌞ A SECTION of the large crowd which witnessed the entire ceremony despite a drenching rain. Newsreel and TV cameras on the stand, upper left, recorded the impressive event.



⌞ COMMEMORATING Ontario Hydro's achievement in the construction of the Sir Adam Beck Niagara Generating Stations No. 1 and 2, Her Royal Highness, shown with Prime Minister Frost, left, and Chairman Saunders, unveiled a plaque of Queenston limestone containing the names of the men who were identified with both project.



⌞ MEMBERS of the official party which included, left to right, Mrs. A. W. Manby, M. Leslie M. Frost, Mrs. Robert H. Saunders, Mrs. Richard L. Hearn, The Duchess of Kent, The Princess Alexandra, Lady Moyra Hamilton, Lady Rachel Davidson, Mrs. W. R. Strike, and Miss Mardi Saunders during inspection of the massive powerhouse.



# BRAVE BIRD

## Kirkland Lake Nighthawk Selects Base of Hydro Tower as a Nesting Site

by Fred Bruemmer (Kirkland Lake Northern Daily News)

ONTARIO Hydro's Kirkland Lake Transformer and Frequency Changer Station has been host to an unexpected visitor in recent weeks. A friendly mottled nighthawk settled down in the centre of the switching yard to hatch its two brown-and-grey eggs a short time ago.

It all started one day when the nighthawk came and inspected the main station building itself. Despite the "whirr" of the frequency changer units and the hum of transformers and high tension lines it decided that this was a good place to raise a family. But, of course, this was expecting too much of Hydro hospitality. Gentle hands ushered the bird outside and everybody thought that was the last they would see of the nighthawk. This particular avian visitor was unabashed by this rebuff. When it was denied the use of the power building, the bird laid its two eggs on the ground outside in the yard, just a foot away from a steel tower carrying the warning: "Danger 110,000 volts."

There she sat, despite the "hustle and bustle" going on around her all day. Since she had chosen a spot close to the parking area, cars passed her within a few feet, but nothing seemed to disturb her a bit. Soon the devoted expectant mother had won the love and admiration of the entire staff from the superintendent down. Everyone began to take a personal interest in her welfare and trod lightly when they passed the nest, showing it to their friends with obvious pride.

In the evening her mate came to relieve her while mother nighthawk flew away from all the noise of the busy station to stack up on food. But she soon returned to resume her duties.

### Strange Nurseries

Nighthawks seem to have the habit of raising their young in odd places around this northern municipality. One has been hatching its eggs on the coal dump of one of the local gold mines for the past three years. Another more civic-minded nighthawk mother laid her eggs at the back entrance to the Lions Club building.

But the Hydro station undoubtedly holds the record. Day in and day out this particular nighthawk sat placidly on her eggs, while 60 workers were busy all around her.

Only when an interested spectator came within a foot or two did she raise her head, ruffle her plumage and hiss warningly. When that didn't help she opened her wide bill, spread her wings and attacked the intruder, valiantly defending her eggs. But none of the Hydro workers did that to her! After all, this nighthawk was their guest and she was treated as such by the entire staff. ▶



HYDRO's diminutive guest placidly disregarded the daily activities at the northern station except when visitors came too close to her nest. Then she would ruffle her plumage and attack the intruders.



ONTARIO Hydro Construction Foreman Mervin Shepherd indicates the unique nesting place at the base of high tension tower in the yard of the Kirkland Lake Transformer and Frequency Changer Station.



# St. Catharines P. U. C. Observes Four Decades of Service with Formal Opening of New Building

# 40 YEARS



 PARTICIPATING in the ceremony, St. Catharines commissioners, left to right, Chairman George Laughlin, Manager Ray Pfaff, Mayor John Smith, W. B. Elliott, Fred Cavers, and R. D. Hunter watch as Hydro Chairman Robert H. Saunders cuts the symbolic ribbon.

**M**ARKING its 40th anniversary, St. Catharines Public Utilities Commission recently celebrated by officially opening its attractive new office and service building. Thus, this progressive municipal utility's office and maintenance facilities were consolidated under one roof for the first time in 17 years.

Cutting a ribbon across the main entrance of the buff and Queenston limestone-faced structure, in the presence of leading civic officials, many local citizens and members of the press and radio, Chairman Robert H. Saunders said the new building was a concrete example of the St. Catharines Commission's well planned policies and abiding interest in service to its customers, which had made an important contribution over the years to the growing prosperity of the municipality.

Mr. Saunders paid tribute to Chairman George Laughlin, who presided during the ceremony, and his fellow commissioners, William B. Elliott, Fred

**HANDSOME** utility headquarters, occupying 135-foot frontage on a main thoroughfare, located in central section of the "Garden City"





# ANNIVERSARY

R. Cavers, R. Douglas Hunter, and Mayor John Smith, and to Manager Ray Pfaff, who skilfully guide the operations of the St. Catharines utility.

He also expressed keen interest in the history of the local commission, pointing out that the "Hydro story is the story behind the ceremonies we are witnessing tonight, and it is a story in which we are all playing a part."

The City of St. Catharines is today both a major agricultural and thriving industrial centre. Agriculturally, it is the hub of one of Canada's finest fruit-growing belts. Situated near the 27-mile long Welland Canal, the city has rail, highway and waterway transportation at its doorstep. This, combined with far-sighted civic enterprise, and the municipal utility's alertness to the needs of industry, has made the city an attractive location for many large manufacturing firms.

## Steady Growth

Established in 1914, the growth of St.

Catharines P.U.C. has gone hand-in-hand with that of the municipality. In 1914, the local commission was serving 833 domestic customers with an average monthly consumption of electricity of about five kilowatthours each. This is in sharp contrast with present-day figures in which the municipal utility, as of the end of 1953, was serving 11,131 domestic customers whose average monthly consumption of electricity was 328 kilowatthours, illustrating the marked effect of low-cost power on the standard of living enjoyed by the community. A picture of progressive development is also evident in the industrial field. Between 1938 and 1953, the number of power customers in St. Catharines increased 81 percent—from 158 to 286—with their average monthly consumption of electricity increasing from 12,947 to 26,091 kilowatthours—a 102 percent increase during this period. At the same time, the average monthly use of electricity by commercial customers increased 104 percent—from 527 to 1,074 kilowatthours each.

## First Trolley System

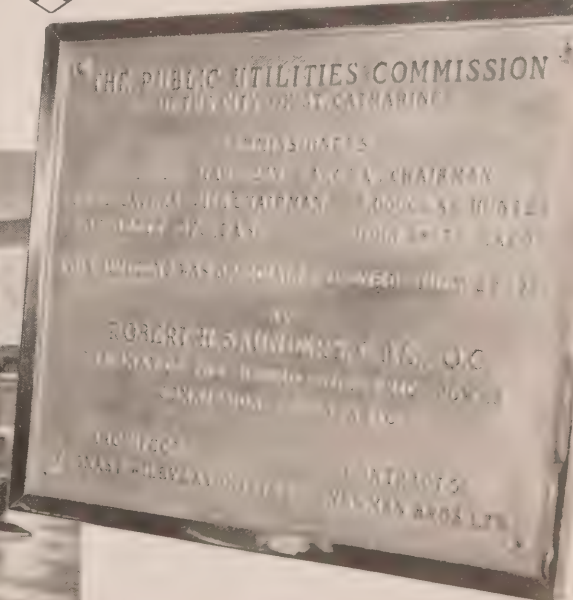
St. Catharines' awareness of the extensive benefits of electricity dates many years—to 1886—when the city received its first power from the St. Catharines Electric Company which generated power at a small hydraulic pond at Lock 5 on what is now known as the old Welland Canal. One year later the city placed in operation the first electric trolley system in North America.

Referring to Ontario Hydro's story of "remarkable growth," Mr. Saunders said that "starting from scratch in 1910, your Ontario Hydro today has assets totalling some \$1,491,000,000, and after 44 years operation we serve directly and indirectly well over 1,389,750 customers." He reported that "Hydro has been engaged for many years in a continuing program of construction to meet the demands for power in the province. Since 1945, we have spent \$1,057,000,000 to bring in new resources and extend our facilities.

(Continued on page 20)

PLAQUE near main entrance commemorates the official opening of the new building.

MAIN business office, with the office manager's and treasurer's private offices at the rear, reflects the general appearance of the entire building. The utility offices were formerly located in the city hall.





We are also committed to spend a further \$209,000,000 to complete projects at present under construction, as well as some \$310,000,000 for the St. Lawrence development—or a total of \$519,000,000.”

Mr. Saunders said that to finance this huge program, including, to date, 16 new power sources, Hydro has sold bonds amounting to \$1,080,000,000, of which \$830,000,000 worth have been purchased in Canada, and only \$250,000,000 outside of the Dominion.

#### New Sources of Power

Turning to the St. Lawrence Power Project, Mr. Saunders told his audience that “our need for power, and the increase in demand for power in Ontario are such that we believe the whole of our share of the St. Lawrence—1,100,000 horsepower—will be absorbed by the year 1961 and, therefore, we are already on the look-out for new sources of generation beyond that date.”

Mr. Saunders expressed “a word of thanks” to the electrical dealers in St. Catharines who have co-operated with Ontario Hydro in carrying out the frequency changeover program for 60-cycle supply in the city.

“I am able to report at this time, that over one-third of the customers in St. Catharines have been changed over and a major part of the industrial change-over has been completed. Present indications point to completion by 1956,” he stated.

Congratulations were extended to members of the St. Catharines Public Utilities Commission by Col. A. A. Kennedy, President of the O.M.E.A., and H. A. Howard, Vice-President of the A.M.E.U. Chairman George Laughlin, commenting on the auspicious occasion, said: “We pledge to strive to the best of our ability to supply you, our customers, with more efficient and better service.”

Speaking at the official opening ceremonies, Commissioner W. B. Elliott paid warm tributes to present and past members of the St. Catharines Public Utilities Commission as he reviewed the long history of the local commission. In thanking Mr. Elliott for his review, Chairman Laughlin said that the speaker had made his own mark in the P.U.C., having served as a commission member for the past 21 years.

#### Inspecting Building

Later, guests and the general public took the opportunity of inspecting the new headquarters. Located on Church

Street, the building contains many of the latest architectural and structural features which assure satisfactory service to the public, and pleasant working conditions for employees, at the same time providing for 100 percent expansion of its facilities, as required, in the future. Constructed of steel frame and concrete floor slabs for fire safety, the building has been designed to facilitate communication between the various departments, and is air-conditioned throughout. The exterior is of buff brick and Queenston limestone set off by stainless steel and aluminum trim. At the

*(Continued on page 24)*



MISS VERA Baumann (seated), a utility staff member since 1918, flanked by, left to right, Mayor John Smith, Rev. R. J. Cummings, who dedicated the building; Chairman Saunders, St. Catharines Chairman George Laughlin and Manager Ray Pfaff was among the spectators.



METER department, line stores, line crew facilities and truck garages are located at the rear of the new building on a lower level than the main business offices.







↑  
MORE efficient use of trucks and equipment has been main result of Strathroy's wired radio controls.

# Strathroy "On the Air"

*(A recent issue of Civic Administration, published by the MacLean-Hunter Publishing Company Ltd., Toronto, carried the following article by Miss Phyllis B. Mitchell, a member of the staff of Strathroy Public Utilities Commission describing the local utility's new wired radio control system. We are indebted to Miss Mitchell and the Editor of Civic Administration for their permission to reprint this material herewith.—Editor's Note).*

THE Strathroy, Ont., Public Utilities Commission has solved the problem of quickly locating its line trucks in times of emergency. The efficiency of the system has been considerably increased as it will no longer be necessary to despatch a messenger to some remote part of the town where the crew may be working. If the linemen complete a job sooner than is expected and move to another point, the inconvenience of numerous phone calls to various possible locations will be eliminated.

As the utility has a varied schedule of work in electric, waterworks and sewage departments in a busy and growing town, a plan that would quickly bring a crew member to the telephone at a time of emergency was sure to find favor.

Wired radio control was the solution.

The installation recently made by Canadian Line Materials Ltd., was already working at a high degree of efficiency for peak load control of flat rate water heaters, pumps and water tower valve, when Foreman Fred A. Bridle decided that the equipment could be put to further use for office to vehicle communication for the three trucks.

This is done by using a relay in a portable, weatherproof case which the crews connect to the secondary bus wherever they are working. It is complete with a red light and bell so that the signal is both visible and audible.

When the crew is needed urgently it is a simple matter for the signal to be sent by the office staff using the proper channel for the truck required, the control panel being located at the substation near the office.

At the sound of the bell and the flashing of the light on the relay where the men are working, someone from the crew immediately telephones the office to obtain the message.

Superintendent A. E. Ditchburn is quite pleased with the results. Wired radio control has not only excelled in peak load control but has solved a problem that was often a source of inconvenience, and emergency service to the consumer has been greatly facilitated. ▶

LOCATED in substation near P.U.C. office, control panel enables office staff to relay emergency messages to line crews quickly.





# ELECTRIC WONDER

HYDRO BUILDING  
DISPLAYS  
SCORE AGAIN  
WITH C.N.E.  
VISITORS



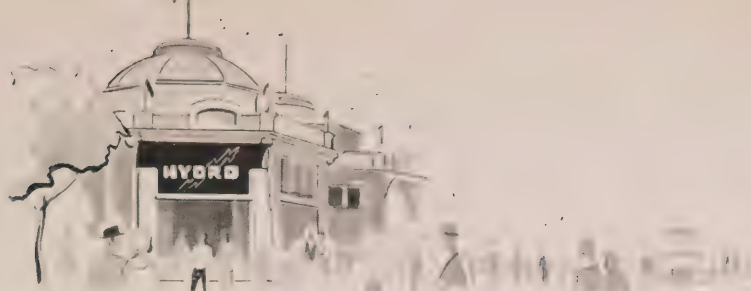
VISITING the Hydro Building after the C.N.E. opening ceremony some members of the official party, left to right, The Princess Alexandra, Mrs. Robert H. Saunders, The Duchess of Kent, C.N.E. President Robert H. Saunders, Ontario Hydro Chairman, and Mrs. Louis Breithaupt, wife of Ontario's Lieutenant-Governor, are inspecting the large model of the St. Lawrence Seaway and Power Project.



COMPLETING its third annual "run," the Hydro Building at Toronto's Canadian National Exhibition scored again this year as an attraction for the thousands who, each year, throng the "Ex" grounds in search of diversion—and education! They seek the unusual, the exciting, and the interesting; and the Hydro Building once again offered them all three.

A visit to the building afforded sight-seers a review of today's wonderland of electricity—from the everyday appliances to which they are accustomed in their own homes to the mammoth generating stations which Ontario Hydro operates for their benefit. The visitors also got a glimpse of the future in the form of a





ONTARIO Hydro's intricate electrical system was illustrated by a series of displays, including this working model of the Stewartville Generating Station, Madawaska River, showing in detail the various steps taken in generating and transmitting power to municipalities and other classes of customers throughout this growing province.

model showing how the appearance of the St. Lawrence River in the area of the International Rapids will be changed with the completion of the 2,200,000-horsepower hydro-electric project on which Ontario Hydro and the Power Authority of the State of New York have already begun work.

An outstanding feature this year was a step-by-step series of displays telling the story of the generation, transmission and distribution of hydro-electric power in Ontario. Beginning with a large-scale working model of the Stewartville Generating Station on the Madawaska River near Arnprior, the display continued with colorful relief maps showing how Hydro's transmission grid stretches

across the province and how power from such generating stations as Stewartville is integrated into the complex network of high tension lines and transmitted, in some cases hundreds of miles, to the load centres where it is to be used.

#### Fuel-Electric Stations

The purpose of the two fuel-electric generating stations built by Ontario Hydro, and opened in 1951, was clearly demonstrated by a model of the Richard L. Hearn Generating Station on Toronto's waterfront, illustrating how the station is linked with the city's distribution system and is designed to supply power to it at times of peak load, thereby relieving the demand on outside sources

and allowing the power, thus freed, to be used in other load centres. Realistic models of the Leaside Transformer Station and the A. W. Manby Transformer Station and Service Centre at Islington completed the display by indicating Ontario Hydro's method of stepping down power voltage and delivering electricity to the Toronto Hydro-Electric System for further transformation and delivery to its customers.

Two of the most popular exhibits were models of the St. Lawrence Power Project and of Niagara Falls and the surrounding area, including the structures forming part of the \$17,500,000

*Continued on page 111*





ALL eyes are on the international powerhouse as Douglas Salton, Ontario Hydro Information Division representative, points out the miniature version of the huge structure on the St. Lawrence model. This exhibit aroused much interested comment.



ONTARIO Hydro's purpose in building a fuel-electric generating station on Toronto's waterfront was explained by this exhibit consisting of models of the A. W. Manby Transformer Station and Service Centre, Leaside Transformer Station and the Richard L. Hearn Generating Station. Visitors were told how the latter station supplements power supplied through the two other plants in peak demand periods.



YOUNG and old queued up to pay a visit to the mobile information bureau used by Ontario Hydro in providing data on its frequency changeover program.

remedial works program; the Sir Adam Beck-Niagara Generating Stations No. 1 and No. 2; the twin  $5\frac{1}{2}$ -mile tunnels beneath the city of Niagara, and the 700-acre pumped storage reservoir which will be completed in 1957 to give an added capacity of 228,000 horsepower to the new station. Public interest in the Niagara model was no doubt augmented by the fact that Her Royal Highness The Duchess of Kent officially opened the Sir Adam Beck-Niagara Generating Station No. 2 on August 30, just three days after officiating at a similar ceremony when the Canadian National Exhibition opened its gates to the 1954 audience.

The St. Lawrence model told, at a glance, how 2,200,000 horsepower will be harnessed in the turbulent waters of the river. An ingenious before-and-after map mounted on the wall near the model showed the International Rapids section of the river as it is today, a few weeks after the August 10 inauguration ceremonies signalled the commencement of work on the project. The push of button activated a concealed lighting system and transformed the map into a panorama of the river as it will appear when the vast undertaking is concluded.

Both these models have been greeted





THANKS to Hydro — "the low-cost hired hand," — labor-saving machines have taken over an estimated 400 of the chores which once were the lot of the farmer. Many of these innovations were incorporated in this display in a corner of the Hydro building.



IN the Toronto Hydro-Electric System section, the wide range of interesting displays included this three-dimensional model of Toronto's distribution system.

with acclaim at showings at various fairs and exhibitions throughout Ontario.

### Electrified Farm

Making a repeat appearance at the "Ex" because of the great interest it has aroused in the past was Hydro's intricate model farm. Built to a scale of half an inch to one foot, the model represents a farmstead measuring 144 feet by 160 feet. Its purpose is to demonstrate just a few of the 400 different ways in which electricity lightens the burden of today's farmer in rural Ontario.

Many of the miniature labor-saving machines incorporated in the model actually work—an electric stable-cleaner, a silo and granary loader, a hay drier, a barn ventilating system, and a manure elevator to convey litter from the stable cleaner to the spreader. Also shown is a milk house containing a hot water tank and a drop-in type milk cooler. In a special workshop attached to an implement shed may be seen a band saw, electric grinder and arc welder. A poultry house illustrates an electric brooder and automatic water fountain.

This model farm, whose moving parts are controlled from a board of 22 switches, is a never-failing centre of

attention wherever it is shown. This year it also has drawn admiring crowds at several public showings in various parts of the province.

The operation of Hydro's Frequency Standardization Division were featured in a graphic display showing how the unprecedented economic expansion of the province over the past seven years has increased the size and scope of the standardization program far beyond original expectations. For instance, initial studies envisioned a project which would involve 784,300 customers of all classes; today this figure has risen to 904,700, an increase of 120,400 customers.

### Mobile Information

A further attraction of the Division was a trailer-type "Information Bureau on Wheels" parked outside the Hydro Building. Here visitors were able to obtain first-hand knowledge of all phases of the changeover from 25 to 60 cycles and see a working model depicting the events which take place on a typical 60-cycle "cut-over" day as well as other informative standardization items.

Space in the Hydro Building was again shared with the Toronto Hydro-Electric System. The theme of the

T.H.E.S. exhibits was set by a large mural presenting a third-dimensional picture of the heart of Canada's second largest city and showing how power generated and transmitted to the city by Ontario Hydro is stepped down in Toronto Hydro sub-stations for distribution to offices, homes, businesses and industries.

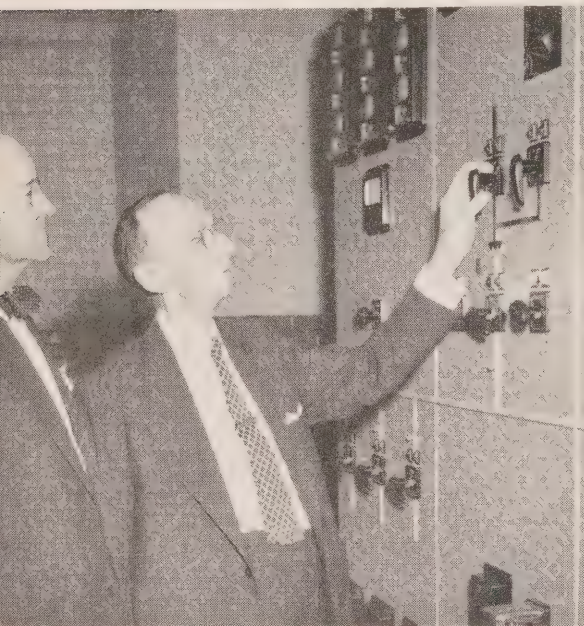
A novel "hanging shelf," displaying the most modern designs in electrical appliances for the home, attracted the attention of thousands of home-lovers who visited the building and drew much favorable comment. Equally popular was Toronto Hydro's "Tunnel of Light"—showing the progress made over the years in the field of illumination—and the "Magic Mirror" which alternately acted as the transparent front of a showcase and as a silvery looking-glass which mirrored the puzzled glances of spectators.

All in all the Hydro Building chalked up a record year in bringing to the public the story of the Commission's past achievements, present projects, and future plans to assure a constant supply of low-cost power to its customers throughout the province. — by J. J. Kirkwood.



MODERN, brick substation, situated on Kitchener's outskirts, will step down 115,000-volt power also for nearby Town of Waterloo. ➤

INAUGURAL ceremony preceded, by a few days, the death of Harvey J. Graber, right, Kitchener P.U.C. Chairman, in whose honor the station has been named. Although ill at the time, Mr. Graber, with W. Ross Strike, Ontario Hydro's Second Vice-Chairman, was present to pull the switch at new plant. ➤



# IN MEMORIAM

New Kitchener Transformer Station Honors  
Service of Late Harvey J. Graber

**L**ESS than a week before his death, Harvey J. Graber, veteran Chairman and member of Kitchener Public Utilities Commission, had the honor of throwing the switch on the city's new 60-cycle, 115,000-volt transformer station.

(The ceremony was held on July 19 this year. Although seriously ill, Mr. Graber was present to officiate. His lamented death occurred on July 25).

Named in honor of Mr. Graber in recognition of his many years of service to the community, the new station is the first municipally-owned transformer station in the Southern Ontario System to receive power from Ontario Hydro at this voltage. Under an agreement with the neighboring town of Waterloo, that municipality will also be served from the station, and will share the benefits of the improved service.

Present at the inaugural ceremony were commissioners and staff members of the Kitchener and Waterloo Public Utilities Commissions, including Mayor Donald

Weber of Kitchener, and Mayor Frank Bauer of Waterloo. Among the many guests were: Dr. S. F. Leavine, M.P.P. for Waterloo North, and officials of Ontario Hydro, including W. Ross Strike, Second Vice-Chairman; Dr. Richard L. Hearn, General Manager and Chief Engineer; Dr. Otto Holden, Assistant General Manager - Engineering; A. W. Manby, Assistant General Manager — Administration; J. M. Hambley, Deputy Assistant General Manager - Administration; I. K. Sitzler, Director, Consumer Service Division, and O. S. Russell, Manager of Ontario Hydro's West Central Region.

## Problems Solved

Acting as master of ceremonies for the brief function was S. E. Preston, General Manager, Kitchener P.U.C., who introduced the guests, and A. W. Bromley, Chief Engineer of Kitchener P.U.C., designer of the station, who spoke of the problems that had been solved by the utility before construction of the building

was undertaken. At the conclusion of his speech he presented Mr. Graber with a gold key and expressed the hope that the station would serve as a fitting memento of the work done by Mr. Graber on behalf of the city. A beautiful bouquet was then presented to Mrs. Graber by Mrs. Preston.

Mr. Graber, who attended the opening despite a severe illness which necessitated his remaining seated in his car during the major part of the ceremony, thanked Mr. Bromley and members of the utility for their fine tribute. "All commissioners and mayors of Kitchener in the past have striven to provide power for the community at the lowest possible cost," he said. "The building of this transformer station is a further big step in that direction. A few months ago this piece of land was empty. Today we have this marvellous structure. It is a credit to our own workmen. On behalf of the commission I wish to thank all men and

(Continued on page 24)



# Port Arthur Manager Retires

ONE of the most representative assemblies of public service men and municipal servants ever to gather in Port Arthur, attended a recent complimentary dinner in honor of Ralph B. Chandler who has retired after nearly 20 years as Manager of the Port Arthur Public Utilities Commission.

Present, besides members of the local commission — headed by Dr. M. P. Benger, Chairman — were former chairmen, former mayors, sitting aldermen, Mayor F. O. Robinson, Port Arthur, and Mayor Gordon Carson, Fort William, representatives of industries supplied with power by the Port Arthur Commission, members of the Fort William Hydro-Electric Commission, W. Ross Strike, Second Vice-Chairman, and A. W. Manby, Assistant General Manager-Administration, Ontario Hydro, and Col. A. A. Kennedy and A. W. H. Taber and other representatives of the Ontario Municipal Electrical Association, and the Association of Municipal Electrical Utilities. Guest speaker was Roy Reynolds, Manager, Chatham Public Utilities Commission.

On behalf of Port Arthur P.U.C., Commissioner Sam Ashton presented Mr. Chandler with an engraved silver tray. J. R. Pattison, Chairman of Fort William Commission presented the retiring manager with a rod and reel suitable for deep-sea fishing. Dr. Benger presided at the dinner, while Commissioner E. R. Freeman introduced the head-table guests and Commissioner N. H. McLennan introduced the guest speaker, Mr. Reynolds.

Mr. Chandler was honored also by the 250 or more employees of the local

commission at a ceremony in the Port Arthur Council Chamber when he was presented with an engraved automatic wrist watch on behalf of the staff. Mrs. Chandler was presented with a sheaf of American Beauty roses.

Born July 15, 1889 at Stratford, Ontario, educated there and at the University of Toronto, where he graduated in engineering in 1912, Ralph Borthwick Chandler followed his profession at Saskatoon, Sask., and Calgary, Alta., before moving to the Lakehead in 1917.

From 1917 to 1923, he was design and supervising engineer for C. D. Howe and Company, Port Arthur, and from 1923 to 1933 was consulting engineer and a partner in the C. D. Howe Company. During Mr. Chandler's years with the company this firm designed and supervised the construction of a great many grain elevators, docks and warehouses, across the country.

Former parks board member and chairman, Mr. Chandler was elected to the Public Utilities Commission in 1935, and in June of that year was appointed Manager of the public utilities commis-

sion. Under his managership great changes and improvements were made in the four P.U.C. departments: trolleys and gas buses replaced the trams; the manual telephone system was replaced by the new dial system; the waterworks and electrical departments were expanded and modernized. Indicative of the growth of the city during his 20-year period of service, was a 109.2 percent increase in the number of Hydro customers.

Mr. Chandler's many civic interests included the Red Cross, of which he served as member and president for 17 years. He is a charter member of the Gyro Club and served as president and district governor. He is a member of the various engineering groups and a life member of the Engineering Institute of Canada. His hobby is fishing and golf.

His successor, E. A. Vigars, is a native son of Port Arthur. His grandfather, the late R. Vigars was a pioneer lumber merchant and Mayor of Port Arthur in 1905. Educated at Port Arthur, the new manager graduated in electrical engineering from the University of Toronto in 1931. He was appointed Assistant Manager of the P.U.C. in 1946. ▶



PRESENTATION of an engraved silver tray was a highlight of the recent complimentary dinner. Members of the Port Arthur Commission, left to right: N. H. McLennan, Chairman, Dr. M. P. Benger, Mr. Chandler, E. R. Freeman, Samuel Ashton, and Mayor F. O. Robinson.



# CERTIFIED WORTHWHILE



THREE delegates enjoy a quiet, discussion at the lodge's main entrance. To right are: Harry J. Mann, Harry Hill, Neustadt, and W. D. Hobbs.

Ontario Hydro, Atomic  
Energy of Canada, and  
Oshawa P.U.C. Represented  
on Impressive Speaking  
List at Successful A.M.E.U.  
Eastern Ontario Accounting  
and Office Administration  
Conference.



KEEN interest in an address by J. R. Risebrough (smoking cigarette), Oshawa P.U.C., on meter departments is indicated as delegates crowd around him for printed copies.





CLYDE KENNEDY, left, Atomic Energy of Canada Limited, who gave an illustrated lecture on Canada's atomic research program, demonstrates to William Hutchins, Havelock, how all fissionable material is encased in a special sheath to protect research staffs.



THREE lady delegates from Napanee at the conference, left to right; Mrs. C. A. Walters, Miss L. Vanalstine, and Miss Ruth Graham discuss the day's program while enjoying the sunshine.

WITH TOPICS ranging from proposed atomic power plants, to describing the functions of a local Hydro commission, the Third Annual Accounting and Office Administration Conference, A.M.-E.U. (Eastern Division) was voted an outstanding success.

Attended by more than 100 delegates who came from near and far to Gil-Mar Lodge, Sturgeon Lake, near Lindsay, the two-day meeting provided plenty of useful information coupled with good entertainment.

Asking how "your local P.U.C. fits in with the municipality it serves," W. Ross Strike, Q.C., Ontario Hydro's 2nd Vice-Chairman, said each person in a community has an interest in the local utility.

The administrative staff of the utility meets the public more frequently than anyone else. It is the way they treat the customer that establishes the reputation of the utility.

Mr. Strike suggested that the greatest interest be shown in the customer's problems. Sometimes the customer has a chip on the shoulder." In that situation, it is the soft answer which gets the best results.

In the collection of accounts, the speaker said "we should not give ourselves any preferred position in the collection of accounts. Arrears should be watched closely, and not allowed to

accumulate to the point where they become difficult to collect."

In the case of "repeaters," or those who seemed to be frequently in arrears, he suggested the introduction of an "escalator" method of charging for re-connection of electrical service, whereby the delinquent customer would be charged an increasing amount for each successive re-connection. Care should be taken to distinguish between "repeaters" and those who were delinquent on account of illness or absence from town.

"A little investigation should prevent inconvenience to customers who have been paying their bills regularly for years," Mr. Strike stated.

Accounting and Office Administration, he pointed out, are most important parts of the public utility organization. Ontario Hydro has been able to borrow money in the bond markets as a result of the sound financial position of the organization. This has been true, not only of the Ontario, but also of the local commissions.

"No other organization in the country has attempted that amount of borrowing," said Mr. Strike, "and it has been possible because the financial organizations are now convinced of our soundness."

#### Grants Unfeasible

Touching on the matter of grants requested by charitable organizations, Mr.

Strike said it was impossible for the local or Ontario commissions to give such grants, other than as set out in the Public Utilities or Power Commission Acts. Commissions were naturally desirous as individuals of helping worthy causes, but once the door was opened to commissions, as official bodies, making grants of public funds it would never be stopped, and might be exploited beyond control. It was felt that "this door should remain firmly closed."

Speaking of Ontario Hydro's auditors in the Regions, Mr. Strike told the audience that these men were interested in the business of the Commissions and in doing a job.

"They do not draw attention to things to be officious. Our financial structure is set up on a province-wide basis, so that when we quote figures we must be always talking about the same thing. Ontario Hydro is very anxious to preserve the autonomy of the local commissions, but feels, naturally, that everything should be done within the Acts."

Charles A. Walters, Manager of Napanee P.U.C., introduced the speaker most felicitously.

W. H. Gibbie, Accountant, Oshawa P.U.C., acted as chairman, and the audience was delighted with the program of songs presented by the Maple Leaf Quartet of Lindsay.

*Continued on page 26*



## Accounting and Depreciation

Other featured speakers were Ontario Hydro's Director of Accounting, G. F. Davis, who discussed "Plant Accounting and Depreciation Reserve," and J. R. Risebrough, Superintendent, Meter Department, Oshawa Public Utilities Commission, who followed with "You and Your Meter Department." A luncheon highlight was an address on Atomic Power, given by Clyde Kennedy, Superintendent of Public Relations, Atomic Energy of Canada Limited, Chalk River.

Dealing with plant accounting and the related subject of depreciation Mr. Davis said that, as of April 30, 1954, Ontario Hydro's fixed assets amounted to \$1,409,000,000, made up of \$1,189,000,000 in the Southern Ontario System and \$220,000,000 in the Northern Ontario Properties.

"I would imagine the only companies in Canada with a larger investment would be the two railroads. Perhaps some industrial companies like the Aluminum Company are close. The fixed charges on these assets will amount to some \$60 million in 1954, about half the cost of power."

These facts, said the speaker, made it important that a proper distinction be made between expense chargeable to a current year's operations, and plant which is a capital asset. It was realized, too, that attention should be given to the life of an asset, so that the proper depreciation rates might be determined. Records must be kept of the movement of assets to ascertain whether the lives of these assets were being estimated correctly, and to judge the effect of technical improvements on assets.

Mr. Davis enumerated changes in Ontario Hydro records last year, or at the beginning of the present year, such as: a new table of asset lives; assets classified by year of construction or acquisition; new plant account numbers established to classify the fixed assets; new construction cost accounts established to account for labor, material, equipment, rental and overhead costs of construction for job control of statistics, etc.

Discussing depreciation, Mr. Davis advised delegates to be aware of what it might cost to replace a 1935 productive plant at, say, 1965 prices. The purchasing power of the dollar has declined over many years and will continue to decline.

"As an illustration, say we have a transformer purchased in 1935 for \$300. Say we set aside \$10 a year for 30 years as depreciation. If the purchasing power of the dollar declines 50 percent in the

interim, should we perhaps not set aside double the dollars, or \$20, as depreciation this year?"

Continuing, he asserted that the old, time-tested accounting principles should be questioned occasionally, in the same way as accounting procedures are questioned.

"If accountancy is going to continue, and not be replaced by machines, I believe we must keep our 'accounting thinking' dynamic. In a public utility, there is no richer field for this thinking than in fixed asset accounting."

## Meter Departments

J. R. Risebrough, Superintendent of the Oshawa P.U.C.'s Meter Department, speaking on "You and Your Meter Department," said that "certain fundamentals of good organization should be observed in organizing a meter department. These would include the right type of personnel, a progressive training program and good supervision. A clean, spacious work area is an asset, also, while good equipment and tools, as a general rule, encourage efficiency.

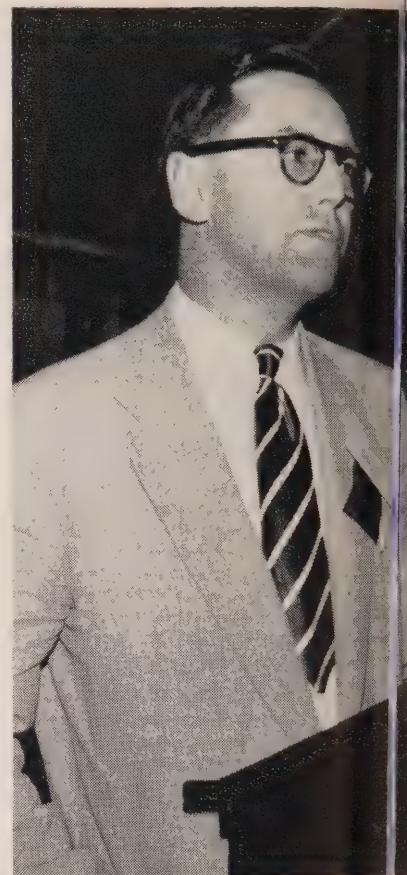
The responsibilities of the meter department, Mr. Risebrough stated, are many and varied. They may include such duties as the collection of arrears also.

Turning to the question of customer complaints, he said, they could provide an opportunity for improving public relations. If, on investigation, it is found that equipment is correct and in order, it may be good policy to have the customer help to determine the reason for high consumption. One of the easiest methods may be to teach meter reading—ask for a daily reading for a period of 30 days on a provided form. This method allows the customer to better understand his daily consumption, and, as a rule, prevents further complaint.

A clear understanding of policy and rules pertaining to meters enables the man in the field to speak the same language as the man in the office. An occasional exchange of ideas and problems often results in improved working methods and lower costs. The meter reader should understand the terms and quantities involved in billing. The man in the field should know the purpose of a load survey and the nature of the required information. The office, in turn, should know something of meter practice and the terms involved. A co-operative exchange of information may assist greatly in dealing with the customer and his problem.

"We, as utility employees," concluded

G. F. DAVIS, Director of Ontario Hydro's Accounting Division, addressed the conference on plant accounting and depreciation reserve.



Mr. Risebrough, "should be constantly aware that we are responsible servants of the public. We should convince the public and ourselves that all operations are performed in an ethical manner. If errors are made, a prompt admission makes for an easy settlement. If services are rendered in a manner that invites commendation, we can be sure of confidence and goodwill."

## Atomic Power

Atomic power should have a special interest to representatives of public utilities, Clyde Kennedy, Superintendent of Public Relations, Atomic Energy Canada Limited, Chalk River, told a luncheon session, in the process of engrossing talk (illustrated by slides) on the subject. By the early 1960's Ontario, all major hydraulic sources of power will be developed and electricity will have to come from thermal energy, he stated. One pound of uranium,





**DEMONSTRATOR** Helen Williams discusses merits of one of the business machines on display with, left to right: Floyd McRae, Brockville; T. H. Shouldice, Ottawa; J. H. Page, Renfrew, and Maurice Miller, Brockville. Mr. Shouldice was named President of the 1955 Conference.

size of a one-inch cube, can produce energy equal to 1,500 tons of coal. The production of uranium in Canada is now three times what it was at the end of the war; soon it will be eight times greater, while the new reactor at Chalk River is expected to be in operation by 1956.

The speaker stated that, of 140 pounds of natural uranium, 139 pounds would be U-238, and the remaining pound would be U-235, the fuel. "Heavy water" is used at Chalk River to "moderate" or slow down neutrons yet its rarity is shown by the fact that only one part in five-thousands of a glass of water is "heavy water."

Saying Chalk River had the first reactor to operate outside the United States, Mr. Kennedy showed slides of three reactors now working there. There are many safety factors. For instance, more than 900 trip systems are installed to shut down a reactor under a system of alarms. Some floors of the new building are constructed of concrete five feet thick.

"Zirconium is coming into use instead of aluminum," said Mr. Kennedy, "as it does not corrode as quickly. A few years ago, it cost \$250 a pound; today the cost

is about \$14 a pound. A few years ago, you could have held all the metallic zirconium in the world in the palm of your hand; now it is becoming more and more plentiful. This shows how atomic needs are producing results in research."

The speaker showed several diagrams of atomic power plants under consideration. He said the problem was receiving constant and active study.

T. H. (Hap) Shouldice, Ottawa Hydro Billing and Collecting Supervisor, was elected Chairman of the 1955 Committee, with Floyd McRae, Brockville, as Secretary-Treasurer, and Harry Simpson, Whitby, and G. T. Buchanan, Havelock, as committee members.

Delegates approved a motion to hold the 1955 Conference at Gananoque, as well as the following resolution: "That the 1955 Committee, and committees of the following years consist of municipal accountants from each of the East and East Central Regions, together with two utility representatives from each of the above regions, and the Vice-Chairman representing the East Section of the A.M.E.U. Accounting and Office Administration, and that the outgoing committee each year nominate a slate of

officers on the basis of the above mentioned to the conference for ratification.

### Golf Tournament

Despite a cold and rainy morning, a sunny weather, the 1000 members delegates, in addition to many guests, had a great deal of work, had

The golfers certainly showed much for persistency. The rain fell frequently but the men of the woods and the rain by Ontario Hydro's 2nd Vice-President W. Ross Strike, completed the tournament. Their clothes may have been damp and their score cards limp, but they came at the evening banquet. They stepped proudly forward to receive the prizes. The winners were as follows: Low Gross—Larry Larsen, Ottawa; Low Net—Don Lamb, Belleville; Low Nine—M. L. Roenigk, Bowmanville; Low Net, 2nd Nine—Bob Brown, Sangam Company; Hidden Hole, 1st Nine—Sy Wilson, Ferranti Company; Hidden Hole 2nd Nine—W. Ross Strike, Bowmanville.

—By Horace Brown.

### Wingham Announces Rate Reduction

Wingham Public Utilities Commission has announced that a reduction of Hydro rates of approximately nine percent has been approved by Ontario Hydro. P.U.C. authorities say the reduction is due largely to the fact that no major expenditures on capital equipment are anticipated in the near future. A very satisfactory surplus, which has been built up over the past few years, reflects the good financial standing of the P.U.C., and is also responsible for the reduction in rates. The nine percent reduction is the first change in rates in Wingham since 1939.

## Classified Ads

### FOR SALE

Distribution Transformers. (New), 25 kva. 4600 2300 575 Volts. 30 KVA. 104-25 KVA, 77-15 KVA, 10-10 KVA, 16-3 KVA. For further details and prices contact: Mr. J. T. Lochhead, Ontario Hydro, Building 9, A. W. Manby Service Centre, Phone No. Belmont 1-4111, Loc. 63 or Auto - 8749.



# Sanctuary Standardized

ONTARIO HYDRO'S CHANGEOVER CREWS COMPLETE  
MISSION AT FAMOUS MINER HOME



GEESE and ducks were unperturbed by the changeover at the famous Miner Sanctuary. The 60-cycle motor, held by Technician D. J. Lawrence, was among the items on the "cutover" schedule.



ONTARIO Hydro technicians worked to the music of an unusual orchestra while on a recent assignment. The musicians were whistling swans, snow geese, Canada geese, mallard ducks and other species of water birds and the occasion was changeover to 60-cycle frequency of the famous Jack Miner Bird Sanctuary at Kingsville.

These birds, although free to come and go at will, are quite tame, and the technicians, as they went about their jobs at the sanctuary disturbed them not at all. In fact, some of the more optimistic birds followed the men, thinking perhaps that the 60-cycle equipment they were carrying would be something good to eat.

Appliances changed over at the sanctuary included a water pump, oil burning furnace, washing machine, grain grinder, record player and ironing machine.

## Unique Use

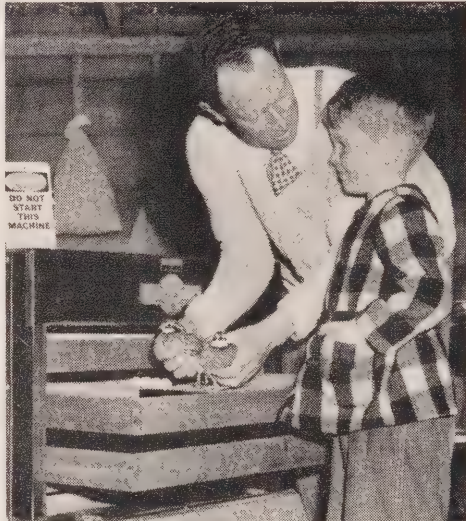
At the adjacent property of Jasper W. Miner, an incubator, which is unique in the respect that it is possibly the only one in Canada used for hatching quail's eggs, was standardized.

Manly F. Miner, who has been managing the sanctuary since the death of his father in 1944, said that during migrating periods it is visited by tens of thousands of birds who rest there for a while before resuming their long flight. One day last November the sanctuary was visited by over 12,000 people.

The handsome home was not only built by Jack Miner and his sons, but was constructed of bricks made by them right on the property.

The pleasant drawing room contains many treasured objects, and occupying the place of honor is the insignia of the Order of the British Empire awarded to Jack Miner by King George VI "for the greatest achievement in conservation in the British Empire."

Changeover of this world-famous place is one of more than 904,000 assignments which Ontario Hydro will have undertaken by the time this tremendous frequency standardization program has been completed.—by Frank C. Wood.



JASPER, left, and Kirk, son and grandson of the late Jack Miner, admire young quail hatched in sanctuary's special incubator, one of the unique pieces of equipment changed over.



WHAT'S going on? A Canada goose, held by Manly Miner takes a great interest in an electric ironer which was being altered by Technician J. Virog.





## ROYAL VISITORS

(Continued from page 1)

Nicholas, who before her marriage was the Grand Duchess Helene of Russia, worked for the many Russian refugees in France; it was largely due to her efforts that an orphanage for Russian children was opened at St. Germain, and Princess Marina helped her mother to raise funds for this school.

Her eldest sister, Princess Olga, had married Prince Paul of Yugoslavia, and it was while staying with her sister and brother-in-law that Princess Marina became engaged to Prince George (third son of King George V of Britain), whom she had met before when visiting England. The marriage took place on November 29, 1934. On the eve of his marriage the Prince was created Duke of Kent. The following year the Duke and Duchess went on a cruise to the West Indies.

The young Duchess caught the imagination of the whole British nation. Horticulturists named new blooms after her; British womanhood took her as its model for dress and fashion. As Duchess of Kent she began to take an active part in public life, travelled all over the country and became known and loved by its people. She was particularly interested in hospitals and nursing work, and many of her public engagements were to visit hospitals or to open new nurses' homes. In June, 1935, she became President of the Elizabeth Garrett Anderson women's hospital (she is Patron today under the National Health Act), and she succeeded the late Princess Alice as President of Alexandra Rose Day, the annual institution founded by Queen Alexandra for collecting money for hospitals. She was appointed Lady Superintendent-in-Chief of the Order of St. John of Jerusalem in Wales, and is Dame Grand Cross of the Order.

### Created G.B.E.

The Duchess of Kent was created G.B.E. in 1937 and in the same year appointed to the Imperial Order of the Crown of India. She received the G.C.V.O. in 1948, and the year before became Colonel-in-Chief of the Queen's Own Royal West Kent Regiment.

Her elder son, Prince Edward, now Duke of Kent, was born on October 9, 1935, and Princess Alexandra on Christmas Day the following year. On July 4, 1942, her second son, Prince Michael, was born.

The Duke of Kent was in 1938 appointed Governor-General designate of Australia, but did not take up office because of the outbreak of war, for he was occupied with naval duties at home. The Duchess was one of the first to volunteer for service at the Iver and Denham General Hospital—their home of Coppins, at Iver, was left to the Duke by the late Princess Louise—and spent some hours there every day; later she took her first aid examination and then qualified as a V.A.D. nurse. She served her training at University College Hospital in London, and worked at the hospital during many of the daylight raids of 1940.

### Wartime Work

Shortly after the outbreak of war, the Duchess of Kent was appointed Commandant of the Women's Royal Naval Service. She spent much time visiting their establishments, talking to servicewomen and getting to know their conditions; she broadcast an appeal for them when the service needed recruits. She also visited emergency hospitals, civil defence depots, work parties and factories, always taking a personal interest in the people she met. In 1946, she received a special award of the Defence Medal for her services as Commandant of the W.R.N.S. (The title was changed to Chief Commandant in April, 1951).

After the tragic death of the Duke of Kent in 1942, the Duchess continued her war work and also took over many of her late husband's interests; among the many institutions in which she assumed his office, it may be mentioned that she succeeded him as President of the R.A.F. Benevolent Fund, of The National Association for the Prevention of Tuberculosis, of the Anglo-Hellenic League, the Royal Naval Lifeboat Institution and of the All-England Lawn Tennis and Croquet Club. In memory of his interest in the District Nursing Association, she opened her private gardens at Coppins to its members.

The Duchess of Kent is interested in every form of art, and leading painters and artists of the theatre and the musical world are often her guests at Coppins. She has received the freedom of the Musicians' Company, and also that of the Glaziers and the Clothworkers—the latter Worshipful Company has admitted very few women to its freedoms. She has travelled widely in Europe since the war, and in June, 1952, came the announcement of her forthcoming Malayan tour. ▶

## NORMAN H. SIEGEL DIES AT STRATFORD



NORMAN H. SIEGEL

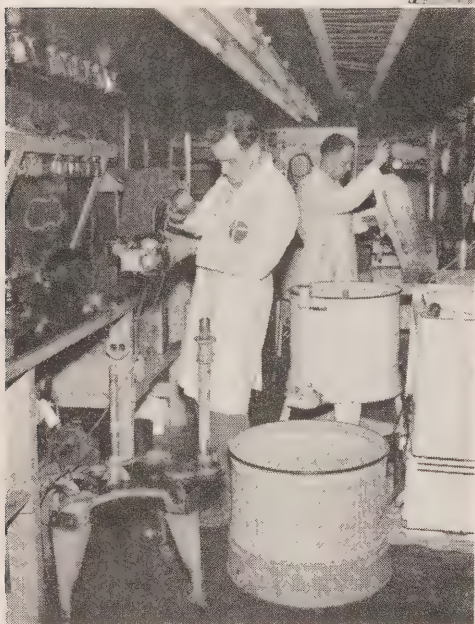
Prominent in both civic affairs and sports circles at Stratford, Norman H. Siegel, Vice-Chairman of the Stratford Public Utility Commission, and a member of the commission for over 28 years, died recently at the age of 63. At the last convention of the O.M.E.A., Mr. Siegel was presented with a long-service award. Born at Mitchell, where he helped convert the Mitchell system from steam to Hydro, Mr. Siegel joined the Grand Trunk Railway in 1911 as an electrician. He retired in 1953 from the Canadian National Railway. He was the guiding force behind the famed baseball teams of the Stratford Nationals, and was a former President of the Canadian National Recreation Association and of the Southern Counties Baseball Association, as well as of the Stratford Amateur Athletic Association. Mr. Siegel was a member of the Stratford Industrial Commission, and was active in the renovation of the old Stratford General Hospital.

### Niagara Project Workers Make 546 Blood Donations

Workers at the Sir Adam Beck-Niagara Generating Station No. 2 have established a fine record in blood donations to the Greater Niagara Red Cross Society this year. In the annual two-day Red Cross Blood Clinic, held at the end of July, 546 workers contributed. Eight employees were on the honor list with 15 or more donations to their credit.



HYDRO Technician George F. Wiles altering a 25-cycle washer in a new mobile shop near Weston.



CHANGING over some direct-drive machines, such as the one in the foreground, is often a complicated operation. Technician Jack Laird (left), is "running in" the gears while Wiles is shown operating a drill in the mobile shop.

## NEW TECHNIQUE

ONTARIO Hydro is meeting with increasing success in its efforts to effect changeover of direct-drive washing machines in the field rather than in centrally-located Hydro workshops.

When Hydro engineers decided to modify the practice of standardizing all direct-drive washers in Hydro workshops it was then considered that only 50 percent of this type of appliance could be standardized in customers' homes.

This type of washing machine has to be almost completely dismantled for changeover, the gearcase removed and the oil drained. It was originally considered that this operation could be more efficiently effected in workshops. But, after a series of tests, Hydro engineers were satisfied that many of the direct-drive types could be changed over right in customers' homes.

### Higher Percentage

After this new scheme had been in operation for a few months, it was found practicable to change over in customers' homes, not the anticipated 50 percent,

but approximately 90 percent of these washers.

Continuing tests proved that all but a few models could be changed over in customers' homes. To save the time and inconvenience involved in taking these few models of Hydro workshops, mobile machine shops are now taken right into cutover areas.

Each of these mobile workshops can simultaneously deal with three washing machines, and this makes it possible for most of these appliances to be ready for operation at 60 cycles on changeover day.

Ontario Hydro said that, under the old method, customers were without the use of their washing machines for several days. The new system is both more convenient for the customer and more economical for Hydro.

As it is estimated that there are more than 100,000 direct-drive washing machines to be converted during the remainder of this tremendous frequency standardization program, these economies will be substantial. ▶

## IN MEMORIAM

(Continued from page 16)

women who took part in its construction."

Congratulations from Ontario Hydro were conveyed by W. Ross Strike, Q.C., Second Vice-Chairman, to Mr. Graber and Mr. Preston, and to all who had taken part in building the station in record time. He especially congratulated Mr. Graber on the high honor accorded him by his commission and fellow-citizens, in giving the station his name. Mr. Strike was thanked by Ivan A. Shantz, Commissioner, of Kitchener.

### Praise for Mr. Graber

Further praise for Mr. Graber came from Dr. S. F. Leavine, M.P.P., for North Waterloo, from Mayor Weber of Kitchener, and from Commissioner Delton Kissner of Kitchener. They recalled that Mr. Graber, who was born in Kitchener in 1888, had served with Hydro for 18 years and was in his 10th year as Chairman of the P.U.C. In addition to this he had served the community as a member of the Public School Board from 1924 to 1934, and as a member of the Public Library Board from 1935 to 1936.

Following the switch-pulling ceremony for which Mr. Graber left his car and entered the building, members of the public were invited to inspect the electrical equipment of the station. The afternoon concluded with an informal dinner at which members of the Kitchener P.U.C. acted as hosts to their visitors.—by J. J. Kirkwood.

## 40th ANNIVERSARY

(Continued from page 10)

rear, are located the maintenance shop, storage bins and garage area. From Church Street, the canopied entrance gives access to a public lobby and a large general office with separate rooms adjoining for billing machines.

For several years the commission office were located in St. Catharines City Hall. In seeking a new location for construction of a new headquarters, the St. Catharines Commission viewed over 2 sites before reaching a definite decision.

Receiving the congratulations of a host of colleagues, Manager Ray Pfaff reported that "we worked, hand in hand, with the employees to ensure that the building would meet all present and future requirements."—by Denis A. Heeney.



# ALONG HYDRO LINES



## Union Honors Veteran Workers

Two employees with a total of more than 75 years' service in the Hydro department of Brantford P.U.C., were honored recently by Local 579, International Brotherhood of Electrical Workers, A.F. of L., on the occasion of their retirement. Edward Nichol, with 42½ years' service, and George Wilson, 33 years' service, were presented with mantel radios to mark the occasion, which was also the 10th anniversary of Local 579. J. H. Gillies, P.U.C. Chairman, Gerry Loree, Past President of the union local, and Jim McCreary paid tribute to the devoted work done by the two Hydro veterans in Brantford.

## Long-Service Employees Retire

More than 128 years of experience were represented by three employees, who recently retired from the Peterborough Utilities Commission — Stanley B. Cummings, 45 years; William J. Sharpe, 44 years, and Albert Spencley, 39 years. All three veteran employees were honored by the commission and their fellow-workers upon retirement. Mr. Sharpe's associates were saddened to learn of his death while on vacation at London, Ont., two weeks after his retirement.

## Named Area Manager at Frankford

Bruce G. Servos, Assistant Area Manager of Frankford Rural Operating Area for the past year, has been appointed Area Manager to succeed Leonard M. Hendrick who recently retired.

Mr. Servos joined Ontario Hydro in 1938 and in 1948, following six years' service with the R.C.A.F. during World War II, was named Assistant Superintendent at Fenelon Falls R.O.A. Two years later he was transferred to Peterborough R.O.A. as Assistant Area Manager, before being moved to Frankford.

During the war Mr. Servos attained the rank of Squadron Leader in the air force. He is a Past President of the R.C.A.F. Association at Peterborough and a member-at-large of the R.C.A.F. Association in Trenton. He is also a former Vice-President of the Hydro Branch, Canadian Legion No. 277.

## Newmarket Undertakes Important Program

Chairman F. S. Thompson recently announced that the Newmarket Hydro Electric Commission had received approval for alterations to the utility office building and for extensions to the electrical distribution system during 1954 and 1955. The program, which will cost approximately \$47,000, will be financed from the proceeds of a debenture issue, available funds and funds estimated to become available.

The Corporation of the Town of Newmarket has received approval to issue debentures in an amount of \$45,000, to provide part of the funds required. At the same time, approval was given to secure a temporary bank loan in an amount of \$10,000, at an interest rate of 4¼ percent, to provide the immediate funds required for the proposed expenditure, pending the issuance of the debentures.

# CONCRETE AUTHORITY DIES

RECOGNIZED as one of the world's top authorities on concrete, R. B. Young, Ontario Hydro consulting engineer died recently. Mr. Young was responsible for the introduction of many of the concreting techniques which have proven so valuable in Hydro's numerous projects. He was, for many years, the Commission's Associate Director of Research, and at the time of his death was a special consultant on concrete.

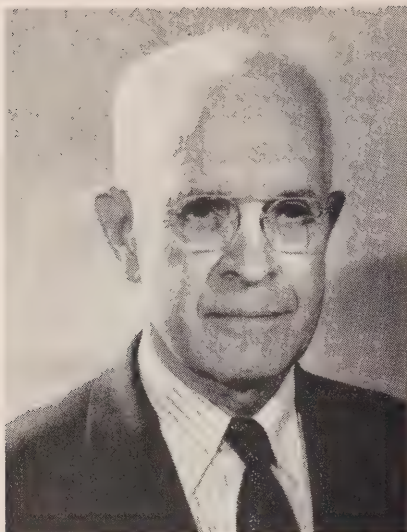
Born in the United States, Mr. Young graduated in civil engineering, and later received the degree of Civil Engineer from the University of Toronto. He became associated with the Commission in 1913, shortly after graduation, and quickly earned a wide reputation in his chosen field. This was recognized by many awards, including the Thomas Fitch Rowland prize of the American Society of Civil Engineers in 1928; the Wason Medal of the American Concrete Institute in 1937, and the Award of Merit of the American Society for Testing Materials in 1953. He was a member of the American Concrete Institute, and its President in 1940-41. In 1953, he was elected an honorary life member of the Institute, in recognition of his research work and his scientific papers which had significantly influenced the development of modern concreting techniques.



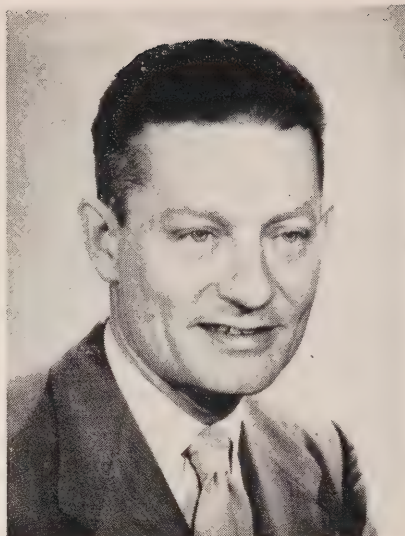
R. B. YOUNG

Long-time member of the Association of Professional Engineers of Ontario, and the Engineering Institute of Canada, he had served in the latter organization both as a councillor and as Chairman of the Toronto branch. At Hydro, Mr. Young was also chairman of a committee directing stores standardization, and was a member of various committees within the Canadian Standards Association, the Research Council of Ontario, and the Portland Cement Association.





A. B. MANSON



E. A. WASHBURN

## A. B. Manson Retires

**A**FTER 42 years of efficient and loyal service, A. B. Manson, General Manager and Secretary-Treasurer of the Stratford Public Utility Commission, retired on August 1. He was succeeded by the man he recommended for the post, Edward A. Washburn, who has been Assistant General Manager since October, 1950.

For the first 16 years of his association with the City of Stratford, Mr. Manson was engaged as engineer with the Works Department. Since he became affiliated with the P.U.C. he has been responsible for the development, improvement and maintenance of many city services and conveniences. One of his most recent undertakings was the frequency standardization program, which was carried out in co-operation with Ontario Hydro with a minimum of inconvenience to local customers, and not a single accident.

Mr. Manson was also active in other spheres. He was a director of the Stratford Board of Trade, Chamber of Commerce, Industrial Commission, and the Stratford Lawn Bowling Club, and held several offices in the Rotary Club, Masonic Order, the Boy Scout Association, and the Perth Regiment. During World War I, Mr. Manson served overseas as a Lieutenant in the Royal Canadian Engineers.

Born in West Zorra Township, Oxford County, Mr. Manson graduated from the University of Toronto in 1910 with the degree of B.A. Sc. He was with the Mond Nickel Company and the

Canadian Northern Railway's construction department as resident engineer, until coming to Stratford.

The new General Manager, Edward A. Washburn, was Manager of Ingersoll P.U.C., until he came to Stratford. He was born in 1916 at Comber, Ontario, near Windsor, where he received his early education. Interested in music, he spent five years following high school touring as a musician. In 1943, Mr. Washburn graduated from Queen's University in electrical engineering. Following his graduation, he served until the end of World War II with the Royal Canadian Naval Volunteer Reserve, where he directed the installation and maintenance of anti-submarine equipment on warships. After a year on the engineering staff of Ontario Hydro, he was appointed Manager of Ingersoll P.U.C. in 1947. A member of the Association of Professional Engineers of Ontario, Mr. Washburn is also a director of the Association of Municipal Electrical Utilities and a member of the Stratford Rotary Club.

### Harriston Installs Control Equipment

Harriston Hydro-Electric Commission will spend \$9,000 for the installation of carrier current water heater control equipment, it was announced recently by Chairman S. B. Stockton. The program will be financed from available funds.

### Dundas Hydro Plans \$65,180 Expansion

Dundas Public Utilities Commission will spend \$65,180.36 on extensions and improvements to the electrical distribution system in 1954 and 1955, it was announced recently by Chairman William Newitt. This expenditure, Mr. Newitt reported, also includes the purchase of rural lines and equipment from Ontario Hydro in the area recently annexed by Dundas.

This program will be financed from the proceeds of a debenture issue and from funds on hand and those estimated to become available. Mr. Newitt said that Ontario Hydro had approved the Corporation of the Town of Dundas' request to issue debentures in an amount of \$45,000 to provide part of the funds required for these purposes, and to negotiate a bank loan in the amount of \$45,000 at an interest rate of 4½ percent per annum, to provide immediate funds required by the municipal electric utility until such time as the debentures are issued.

### Bolton Hydro Plans Expansion Program

Ontario Hydro has approved an expenditure by the Bolton Hydro-Electric Commission of \$12,300 for extensions and improvements to the electrical distribution system in 1954 and 1955, Chairman C. J. McCort announced recently.

The program will be financed from available funds, funds estimated to become available and the proceeds of a debenture issue. Mr. McCort reported that approval has been given to the Village of Bolton to issue debentures in an amount of \$10,000 to provide part of the funds required by the local electric utility for these undertakings.

### Thorold P.U.C. Plans Improvement Program

An expenditure of \$51,700 for normal extensions and improvements to the electrical distribution system in 1954 was announced recently by Chairman C. A. Knoll.

The program will be financed from the proceeds of a debenture issue. Mr. Knoll reported that approval was given to the Corporation of the Town of Thorold to issue debentures in an amount of \$65,000 to provide the funds required by the local electric utility for these undertakings and the re-establishment of funds invested in undebentured plant.





IAN STUBBS

## IAN STUBBS SUCCEEDS GUY C. PARKER

**I**AN S. STUBBS, Consumer Service Superintendent, Western Region, has been appointed Consumer Service Engineer, West Central Region, Hamilton, succeeding Guy C. Parker, who retired recently. Mr. Parker had held the position from the formation of the West Central Region in 1948.

An employee of Ontario Hydro for 30 years, Guy Parker was honored at a reception in the Engineers' Mess at Fort York Armories, Toronto, when a presentation was made to him by his old friend and associate, H. D. Rothwell, Liaison Officer, St. Lawrence Development, on behalf of those present, many of whom had come from distant points to extend their best wishes. Mr. Parker, who was born in Montreal, graduated from the University of Toronto in 1911 in electrical engineering. Five years later, he obtained his M.A. Sc., and in 1919 was awarded his degree in civil engineering. After working for various firms and for the Ontario Department of Highways, he joined Ontario Hydro in 1924, serving in the Municipal Engineering Department under R. T. Jeffrey. He owns a 160-acre farm at Freelon, Ontario.

Mr. Stubbs brings to his new position a knowledge of Hydro dating back to 1930, when he was assistant to the Rural Superintendent at Sandwich. In 1938, he was appointed Rural Superintendent at Merlin, remaining there for 10 years, until

## ALTER DeCEW GENERATING UNIT

**F**IRST generating unit in Ontario Hydro's Niagara Region to be altered from 25 to 60-cycle output, and, in its entire system, the largest hydraulic unit which the Commission to date has had changed over for power generation at the higher cycle, now is turning out 85,000-horsepower (64,000 kilowatts) of 60-cycle power at the DeCew Falls Generating Station, near St. Catharines.

This major changeover job was carried out mainly by Hydro's Niagara Regional mechanical and electrical maintenance staffs. The job was started on April 2, and was finished in the record time of 15 weeks.

This unit alone would provide enough electric power to supply the entire load of two cities about the size of St. Catharines, according to Hydro engineers. It is among the largest of the Commission's generating units and will help to meet the steadily-growing demand for 60-cycle power.

The Commission's DeCew Generating Stations, consisting of one of the oldest hydraulic power plants on the continent, and the adjacent new modern station completed in 1947, are situated in the historic and picturesque DeCew Falls Valley some three miles from St. Catharines. The older station produced power for many years at an unusual 66-2/3 cycles. Its units were changed to generate at 60 cycles, with comparatively simple adjustments, several months ago.

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he became Consumer Service Superintendent, Western Region, which position he held until his recent appointment.

Born in Dorchester Township in 1904, he was educated at Ingersoll, and attended Queen's University. He has been active in the various communities where he has served, and is a Past President of the Merlin Community Club, and the London Rotary Club, besides being prominent in the Merlin Rotary Club. Mr. Stubbs is on the Executive Committee of the Ontario Society for Crippled Children, and is a member of the Masonic Order and the I.O.O.F. His hobbies include woodworking, figure-skating, and swimming. A brother, Frank P. Stubbs, is Manager of the Aylmer R.O.A.

The recent major changeover, involving virtually the rebuilding of the entire generating unit, was for the No. 2 in the newer station.

### To Change 2nd Unit

The No. 1 generating unit in that plant is scheduled in the fall of next year to undergo a similar major alteration. This giant power unit will have the same capacity as the No. 2 generator just altered.

Something of a record was set. Regional mechanical and electrical maintenance crews in stripping and dismantling the 25-cycle unit after the unit was taken down to prepare for the big task of altering it for 60-cycle output. A considerable saving was effected when the new rotor, the moving portion of the generator, was installed on the existing generator shaft with some other parts of the 25-cycle unit being used. While the generator section was dismantled, an entire overhaul job also was performed on the turbine for the unit.

The alteration work required the installation of not only a new rotor, but also a new stator, which is the stationary or non-moving section of the unit, as well as the changeover of all the transformers to step up the power from the generator. Three of the transformers were converted to take 60-cycle power, and the fourth was installed to handle dual frequency, either 25- or 60-cycle power, making it a spare for both banks. Work of changing over the transformers was done by the English Electric Company of St. Catharines, and the Canadian General Electric Company manufactured, and later supervised the installation of the new 60-cycle generator.

### Much Planning Involved

Although the power plant is located close to the City of St. Catharines, a great deal of planning and re-routing was involved in getting the huge generator parts and transformers to and from factories. The large transformers had to be taken by tractor trailer trucks to a nearby railway line and shipped to Hamilton, and then back by another rail route to reach the English Electric plant. This long 80-mile haul, rather than the short three-mile trip, was necessary because of bridge clearance.





## MEMORIAL SERVICE

**B**EFORE the towering monument of Sir Adam Beck, known as "The Father of Hydro," on University Avenue in Toronto, a special service of commemoration was held August 13 to pay tribute to the memory of Ontario Hydro's first Chairman who died on August 15, 1925. Memorial wreaths were presented by Ontario Hydro, the Toronto Electric Commissioners, Ontario Municipal Electric Association, Association of Municipal Electrical Utilities, and the City of Toronto. Pictured from left to right are: Controller David Balfour, Dr. Roland Hill, St. Barnabas Chester Anglican Church, who dedicated the wreaths; John McMechan, Vice-Chairman, Toronto Hydro; Mayor Leslie Saunders, Chairman Bertram Merson, Toronto Hydro; Ontario Hydro Chairman Robert H. Saunders, Dr. Richard L. Hearn, General Manager and Chief Engineer, Ontario Hydro; Controller Roy Belyea; J. S. McGregor, Assistant General Manager, Toronto Hydro; Ron Harrison, representing the A.M.E.U.; and Lt. Col. A. A. Kennedy, President, O.M.E.A.

### Plan Official Opening of C.S.A. Building

Official opening of the new Laboratories and offices of the Approvals Division of the Canadian Standards Association at Rexdale Blvd. and Brydon Drive, Township of Etobicoke, will take place on October 25 this year. Dr. W. P. Dobson, Research Consultant, Ontario Hydro, who has been prominently identified with C.S.A. activities for many years turned the first sod for the new building several months ago (Ontario Hydro News, April, 1954).

The Division moved from its previous quarters at 77 Florence Street, Toronto, to the new building on its completion during the month of August.

### Toronto Township Doubles Customers

Toronto Township is making rapid advances in population. This is indicated by the number of electrical customers being connected to the township's Hydro system. Manager R. H. Starr, of Toronto Township Hydro-Electric Commission, reports that his staff recently "hooked up" the 10,000th customer.

This is a "far cry" from the mere 5,223 customers served by the local commission as at December, 1949, and Mr. Starr confidently predicts that the system is due for another increase in the number of customers and load "as soon as the township can see its way clear" to permit further subdivisions.

### Lindsay Reports Operating Surplus

A net operating surplus of \$48,510.17 for 1953 has been announced by the Lindsay Hydro-Electric Commission in its annual report. The statement gives partial credit for the surplus to the fact that a new schedule of rates was put into effect on February 1, 1953. This increase, coupled with the general increase in the use of electrical energy, resulted in considerable additional revenue. Contracts were let during the year to the Canadian General Electric Company for \$35,605 and to Reliance Electric and Engineering Company for \$15,950, both covering rehabilitation of the No. 1 substation. It is expected that the work will be completed by this fall.

### John S. Wilson Dies at Uxbridge

A former Chairman of the Uxbridge Public Utilities Commission, John S. Wilson died at his home in Uxbridge. Born at Green River in 1892, Mr. Wilson served overseas in World War I, and was awarded the Military Cross. A graduate engineer of the University of Toronto, he had a long record of public service in Dryden, including 20 years on the school board, two years as mayor, and eight years on the council. When he retired to Uxbridge in 1945, he became Chairman of the Uxbridge P.U.C., and was responsible for organizing the work of the commission and the expansion of its services. He was a charter member of the Cottage Hospital Board, and otherwise active in community affairs.

### Hamilton General Hospital Grateful to Ontario Hydro

Impressed by the manner in which the changeover to 60-cycle power was accomplished without hindering the vital work of its institution, the Board of Governors of the Hamilton General Hospital, at recent meeting, instructed Board Secretary R. J. Baker to congratulate the Commission's Frequency Standardization Division. In his letter, Mr. Baker spoke of the "very excellent services rendered by you during the standardization operations at the hospital."

The letter went on: "It was with much satisfaction that the Board of Governors found the disruption of hospital services was kept to an absolute minimum, and the very large and complicated project carried to a successful conclusion with very little inconvenience for any department. Many thanks for a job well done."



## HYDRO FROGMEN EXAMINE POWER CANAL

**H**YDRO frogmen have been making a detailed examination of the walls and bottom of the power canal which, for the past three decades or more, has conveyed water to Hydro's Sir Adam Beck-Niagara Generation Station No. 1 (formerly the Queenston-Chippawa Generating Station). Purpose of the underwater survey was to determine what repairs, if any, are required in the 34-year-old waterway in the future.

For the first time since the canal went into operation, the ponderous 40-ton steel gate at McLeod Road near Montrose was down and almost closed. The gate was open about eighteen inches to allow a water flow of approximately 1,500 cubic feet per second to pass from the Welland and Niagara Rivers into the canal.

Working in teams, the frogmen covered approximately a mile per day in their close scrutiny of the 8½-mile waterway, taking from four to five days to complete the examination.

Engineering survey parties accompanied the frogmen in two pointers (large-sized rowboats) to record the findings of the underwater surveyors.

### Check Tunnel Efficiency

Coincident with the virtual closing of the power canal, the flow and the efficiency of the new No. 1 power tunnel was tested. The tunnel, temporarily, carried most of the water to the Commission's two generating stations at Queenston. Early computations indicated that the tunnel was handling efficiently all the flow for which it was designed.

A. S. Robertson, Manager of Ontario Hydro's Niagara Region, recalled that last summer a six-hour examination of the canal was made using frogmen for the first time to aid the conventional divers in checking the canal bottom, (*Ontario Hydro News*, July - August, 1953). The versatility and efficiency of frogmen were noted then, and they, therefore, were used again in the more detailed survey of the entire canal.



**AMONG** the prominent visitors who recently inspected Ontario Hydro's now world famous Sir Adam Beck-Niagara Generating Station No. 2 project were Sir John and Lady Wrightson. Sir John, centre, is Chairman of Head, Wrightson and Co. Ltd., Thornaby-on-Tees, England. He is shown with Lloyd Young, left, and Dr. W. P. Dobson, Research Consultant, right, who accompanied the visitors on their tour of the development.

### Quebec Supplier Plans Expansion

Gatineau Power Company has secured the site, and is now preparing plans for the head office building to be erected in Hull, P.Q., G. Gordon Gale, President of the Company, announced at the recent annual meeting of shareholders.

The company is also proceeding with the installation of an additional 45,000 horsepower generating unit at its Pagan Falls plant. It is expected that this unit will be in service toward the end of next year. The present installation at the Pagan Falls plant is 238,000 hp. Ontario Hydro purchases power under contract from the Gatineau Company.

### First Hydro Chairman Dies at Beamsville

First Chairman of the Beamsville Hydro Commission when it was formed in 1938, and a member of the commission ever since, Sidney James Wilson, 73, died recently at his home. Mr. Wilson was a former M.P.P. for West Lincoln riding, and served for several sessions after his election in 1931. He was first elected to the Beamsville Council in 1912, and occupied many civic offices in the community where he was held in the highest esteem, including that of Chairman of the Beamsville Board of Education in 1924.

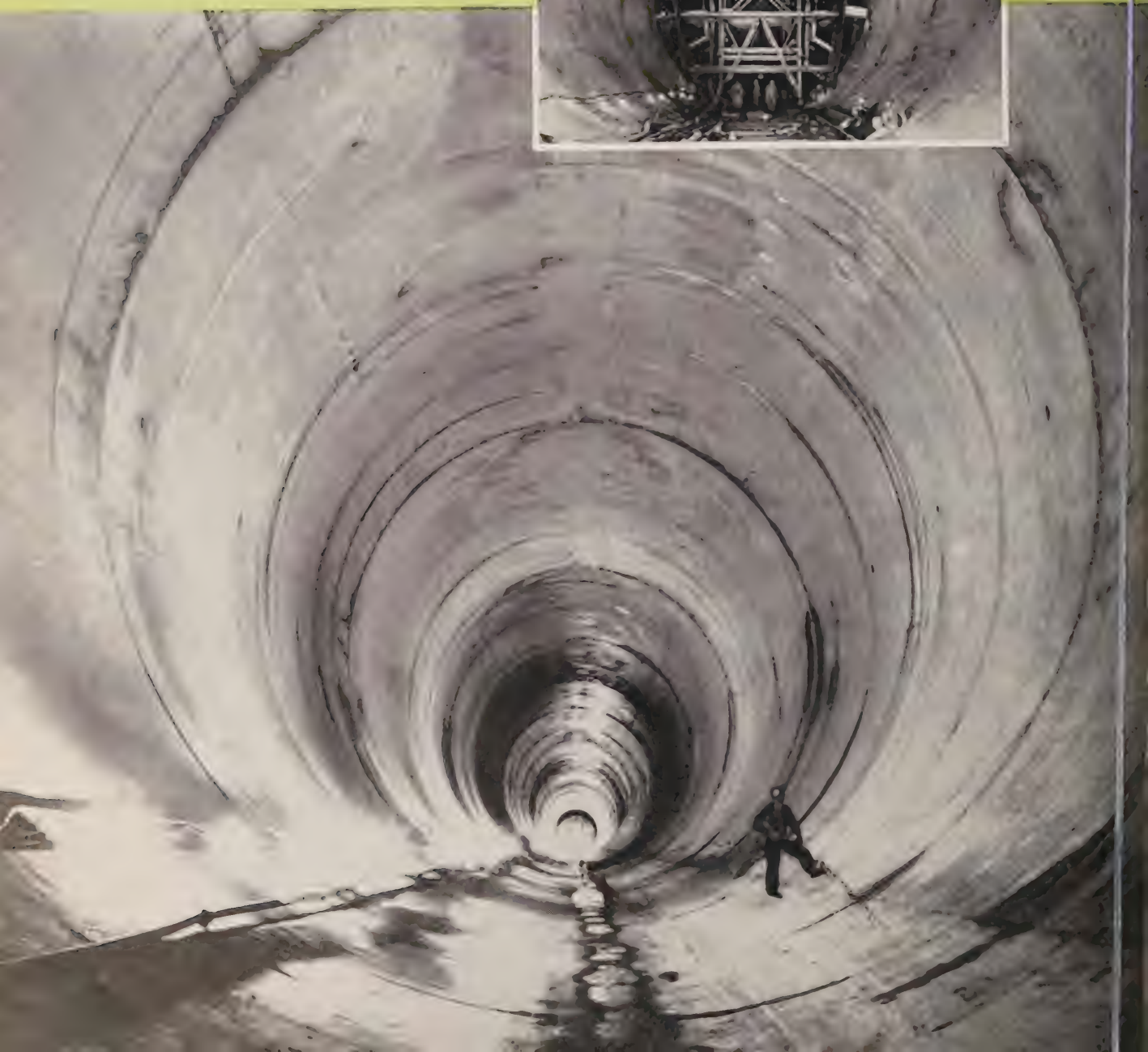
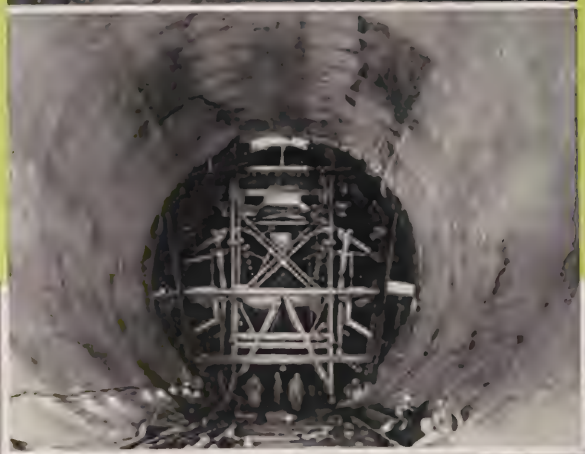


### WAR RELIC

**B**ELEIVED to be a relic of the War of 1812-1814 waged in the vicinity of Chippawa (then a fur-trading terminal), a four-pound cannon ball, which is being examined by Ontario Hydro engineers, Herbert Jackson, left, and Dan Allin, was found in the vicinity of the new cofferdam built in the upper Niagara River. The cofferdam is being used to unwater a section of the river during the building of the Grass Island Pool control structure as part of the Niagara preservation program.



**D**ESIGNED to carry 15,000,000 gallons of water a minute, the parallel tunnels of the new Niagara project, with a combined 11-mile subterranean length and a finished diameter of 45 feet each, are regarded as notable engineering achievements. These photographs show the huge underground waterways as they progressed from mere "holes in the ground" to their present impressive proportions.





ONTARIO HYDRO

*News*

OCTOBER, NOVEMBER, 1954

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# ONTARIO HYDRO

## News

October-November, 1954 Vol. 41 Nos. 10 and 11

Published by

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO  
620 UNIVERSITY AVENUE, TORONTO



### STATUS OF THE ATOM

**S**PEAKING at Midland on October 7, Hydro Chairman Robert H. Saunders made a significant announcement on the present status of Ontario Hydro's atomic power studies.

Having returned from the United Kingdom (where he participated in an atomic power conference) only a few days previous to his Midland address, Mr. Saunders reported that Britain's first atomic electric station will be producing power by the end of 1956.

Known as Mark I, this infant of the atomic age is only the prelude to even greater developments in this comparatively new field of scientific research. At the present time, a group of about 25 engineering representatives of four British electrical manufacturing firms are working on the development of new plans and designs for a different type of plant which, it is considered, will be more acceptable for general peacetime use, and will be capable of generating electrical power that will compete with the cost of steam-generated power using coal as a fuel. This British atomic team will, it is believed, have completed the necessary "blueprints" for this new station within a two-year period. The participating firms will, by then, be in a position to submit tenders on construction of this latest type station in the United Kingdom, Canada or elsewhere.

It is estimated, presently, that one of the new stations could be built within three years. On the basis of the foregoing schedules, therefore, it will be at least five years before such a plant can be put into service.

Unless unforeseen changes occur, Ontario Hydro does not consider that construction of an atomic plant will be necessary before 1958 or 1959, Mr. Saunders told his Midland audience. This opinion is based on the fact that additional generating capacity in units being brought into service at the Commission's 1,828,000-horsepower Sir Adam Beck-Niagara Generating Station No. 2 will be sufficient to meet demands until the fall of 1958, when the St. Lawrence Power Project will come into production.

While the Commission does not envisage the necessity of entering the field of atomic energy until after the major portion of the output of the St. Lawrence development is being utilized, nevertheless, Hydro is fully aware of the significance of these developments in atomic research. Mr. Saunders announced that arrangements had been completed, through the "good offices" of the Commission's General Manager and Chief Engineer, Dr. Richard L. Hearn (a director of Atomic Energy of Canada Limited) to send a small group of Hydro engineers to England to participate in the atomic studies now in progress.



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Authorized as second class mail,  
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#### CONTENTS

	Page
Maximum Effort	1
Along Hydro Lines	1
World Pattern	11
Third Unit "On Load"	1
Light's Diamond Jubilee	1
324th Municipality	1
Hydro's Light Men	2
Lanterns to Luminaires	2
Economic Anchor	2

#### COVER PHOTOS

**P**ERHAPS no city on the North American continent could offer better evidence of the great contribution of Thomas Edison and his first incandescent bulb to the science of electric lighting than Toronto with its unique, Yonge Street, facade-type fixtures, using 750-watt bulbs.

As a tribute to the 75th anniversary of Edison's achievement (observed on October 21 this year), our cover photos (front cover: Yonge Street looking south from College Street; back cover: Yonge Street looking south from Richmond Street) show the effect of this new method of street illumination.

Material published in Ontario Hydro News may be reprinted without permission. Most photographs are obtainable on request. If required, stereos will be provided.





**FRAMED BY** the leaves of early Autumn, the "Hydro Duck," a self-propelled landing craft, nears shore after laying a record 11,400 feet of underwater cable from Christian Island to the Georgian Bay mainland. The cable, submerged to depths of 150 feet in some places, will transmit Hydro power to the island, an Indian Reservation populated by 350 descendants of the Chippewa tribe.





HYDRO'S loan of some 730 tons of Bailey bridge material at the peak of the emergency permitted quick repair of several major bridges in the Toronto area, such as this Highway 11 structure.

HYDRO Helicopter Pilot Bruce Best lands the aircraft on the roof of a flood-beleaguered Etobicoke Township home to save an elderly couple who had clung to the television aerial for several hours.



# MAXIMUM EFFORT

Men, materials, and money provided by Ontario Hydro and its large staff help ease serious emergency created by winds and rain of Hurricane Hazel.

*(Federal Newsphotos of Canada)*



## "IF WE HAVE IT, TAKE IT!"

WITH these words, Ontario Hydro Chairman Robert H. Saunders placed the Commission's resources at the disposal of mobilizing rescue forces and flood workers shortly after Hurricane Hazel left its devastating mark upon Ontario.

From the stricken areas and communities around and north of Toronto came urgent calls for assistance to municipalities, police, Ontario Department of Highways, and civil defence authorities. The need was great:

- Helicopters to aid in rescue work in the ravaged Humber Valley and Holland Marsh, and help in the control and direction of traffic;

- Pumps to remove the water inundating the rich farmland of Holland Marsh;

- Houses, bedding and blankets for destitute Marsh farmers and other victims of the hurricane;

- Bailey bridging to restore transportation life-lines to isolated communities which had been virtually cut off when the angry rivers swept away the bridges;

- Sound trucks to direct rescue operations and also assist in traffic control.

Hydro immediately responded to the call, at the same time handling the repair of extensive damages to the system estimated at approximately \$500,000. The task was prodigious. And yet from the chaos and destruction left on that never-to-be-forgotten night of Friday, October 15, and the early morning hours of the following day, there quickly emerged an organized plan of attack.

The words which triggered Hydro's contribution in the emergency were spoken early Saturday morning as flood waters reached their peak. Chairman Saunders readily gave the "go-ahead" to T. J. Burgess, Line Maintenance Engineer, to bring the helicopters under his charge into action. When storm warnings had gone out Friday, Hydro had made preparations. Two helicopters had been brought into Malton in the event of needed transmission line patrol. These machines were completely serviced and ready for immediate take-off when the call for help came.

### Three Helicopters

Two of Hydro's helicopters were airborne early Saturday morning and were aloft a total of 16 to 18 hours a day for

nine days on flood patrol, while the third machine continued the operation for another two days. The pilots of these craft rescued at least 100 persons and recovered the bodies of some 30 flood victims. They also spotted hundreds of others for rescue by Navy whalers and ground search parties. They landed work crews on "islands" created by the swollen waters, and later dropped equipment and food, including hot dinners, to these groups. For more than a week after the catastrophe, the helicopters were engaged also in controlling all traffic over the two remaining bridges across the Humber under police direction, which provided the only means of access to the central portion of Metropolitan Toronto.

Their individual feats of endurance

*(Continued on page 4)*


**HARRY** Cassan, Weston P.U.C. lineman, completes installation of floodlights to permit round-the-clock repairs to a major arterial bridge over the flooded Humber River. (Bell Telephone Co. of Canada photograph).



RENDERING valuable help in co-ordinating rescue work and traffic control, Ontario and municipal Hydro "sound-trucks" were of vital importance in speedy restoration of electrical service. Les Clair, above, Assistant Superintendent, North York Hydro, is shown as he transmits an important message.





 HOMES and other buildings lie half-submerged beneath an estimated 8½ billion gallons of water which covered an 11-square-mile area of Holland Marsh.

DISCUSSING the pumping project with Chairman Robert H. Saunders (left) are: William Horlings, Pump Committee assistant; Reeve Arthur Evans, Bradford; Harvey Self, Hydro's Generation Construction Engineer, and Peter Verkaik, Chairman of the Marsh Pump Committee.



and daring while participating in this oft-time hazardous work are almost too numerous to mention.

Pilot Stan King worked in the Woodbridge and Holland Marsh areas where, for two days he did little else but move stranded flood victims to safety. In rescuing persons marooned by the waters, he would drop his plane to the roof peaks for direct rescue work. At other times, he would bring his aircraft close to the marooned, tell them to "hang on," and lift them over the boiling waters to high ground.

#### Roof Rescue

Pilot Bruce Best took off for Raymore Drive on the Humber River near Weston, where the full fury of the storm had swept away almost an entire street. There, during a series of exploits, he set his helicopter on the roof of a house to rescue two persons who had clung to a television aerial throughout the night.

Also on duty in the Humber Valley was Jim (Blackie) McKaye, Chief Helicopter Pilot. Many men, women and children are alive today as a result of the roof-top rescues in which he and the other pilots participated.



Normally, helicopters are grounded after 25 hours' flying time for inspection and repairs, if necessary. In order to keep them in the air, Hydro's maintenance crews, under Arnott Campbell, provided "progressive maintenance," working with clockwork speed and precision on each craft immediately after it landed for refuelling.

Second to the rescue and search work of the helicopters, but of almost equal importance, was the part the aircraft performed in helping police clear traffic through the congested and battered areas by establishing "walkie-talkie" contact with ground-based police and army forces. The value of the helicopter in traffic control is widely recognized in other centres, but this was the first time it had been given a real test in Toronto.

Ontario Hydro "sound-trucks" and personnel also assisted the police in emergency traffic control.

#### Holland Marsh Flood

From Holland Marsh, a few miles north of Toronto, where more than 9 feet of water submerged an 11-square-mile area of one of the richest agricultural sections in Canada, came an appeal to pump an estimated 8½ billion gallons of water from the low-lying area.

Many thousands of people are dependent on Holland Marsh for vegetables, and with only precious few weeks remaining before the winter freeze-up, the farmers decided to reclaim their land by pumping out the flood waters. No sooner

had the call for pumps been made than John Stark, Director of Hydro's Construction Division, passed the word along to Solon Hummel, Construction and Equipment Engineer, and Harvey Self, Generation Construction Engineer.

Ontario Hydro rushed 12 pumping units from its Niagara project and other locations, and in addition, obtained seven other large units from Steep Rock Iron Mines at Atikokan; Howard Smith Paper Mills, Cornwall; the City of Ottawa, and Construction Equipment, Ltd., Toronto.

In order to get the first pumps operating, electrical facilities were set up by Hydro Construction Division employees and Georgian Bay Region line and maintenance crews in record time.

Under the expert field direction of Kelly Kemp, Electrical Superintendent, Construction Division, three emergency substations were installed. Two miles of distribution line were extended from two Bradford substations to the three emergency stations, thus making available some 2,500 horsepower of electricity to drive the battery of pumps. The first of the three substations was ready for operation in the record time of eight hours, using a transformer loaned by the Barrie plant of Canadian General Electric Co. Ltd. The two other stations were completed by the end of the first week. By October 31, Hydro had installed a total of 19 pumps, both electric and gasoline-operated, with a pumping capacity of more than 175,000 gallons of

water per minute. In addition, the permanent pumping equipment at the "Marsh," has a capacity of 60,000 g.p.m., making a total maximum capacity of 235,000 g.p.m.

To house the homeless "Marsh" farmers, some 30 prefabricated buildings were shipped from points as far away as Lancaster. Under the supervision of Foreman Lorne Martyn, these temporary dwellings were erected promptly, one family "moving in" two days after the material arrived.

#### Bailey Bridges

In the first week after the storm, Hydro provided more than 730 tons of Bailey bridging—sufficient to build 20 complete bridges—to replace structures which were destroyed or damaged during the storm. Hydro also shipped about 206 tons of Bailey bridging from the A. W. Manby Service Centre at Islington to build six bridges in the Cookstown district on Highways 400, 11 and 7 in the first day or two. Bridge material was then forwarded to the sites of several other bridges in Toronto and the outlying districts, which had crumbled under the crushing force of overflowing streams. Much of the erection work was done by the 2nd Field Regiment of the Royal Canadian Engineers, Canadian Army Militia, among whose ranks were several Hydro employees. Technical assistance in the erection of the temporary structures was provided in

(Continued on page 6)

HYDRO'S Georgian Bay Regional crew installs a temporary substation to supply the necessary power for the electric pumps being used in the draining operation.




HYDRO frogmen Bob Johnson, left, and Maurice Huard have been kept busy clearing vegetables and debris from the big pumps.







 **BOB WALKER**, Newmarket Hydro lineman, barely escaped drowning while he was operating this air breaker to cut the power at a local substation. In the water for an hour, he was rescued by some Newmarket firemen.

many instances. Ontario Hydro's Rigger Foreman James McGuire was sent from the Sir Adam Beck-Niaagra Generating Station No. 2 project for this purpose.

Co-ordinating the appeals for bridging, which came from the Highways Department, municipalities and various contractors, was Ken Blakeman, the Commission's expert on the uses of Bailey bridges. Under his direction, a system of priorities was established so that the most important bridges were replaced first. Shipments from Islington were organized and loaded by a six-man crew under Frank Percy who operates the Bailey stores.

In addition, Hydro loaned several bulldozers and loaders to Etobicoke Township which were used to fill in bridge approaches and culverts washed out by the flood. The equipment was also employed in moving debris and silt.

Hydro assisted several welfare organizations in their flood relief operations. For example, 100 beds and blankets were

loaned to the Red Cross Society in providing aid for a host of disaster victims. Extensive assistance was given also to the Salvation Army by the loan of suitable Hydro trucks for the delivery of relief supplies from the temporary "Army" headquarters in Toronto's University Avenue Armories to flood-stricken districts, particularly in the Woodbridge and Thistletown areas. As many as 15 trucks with relief drivers were in action for over a week, continuing their delivery work late into the night on several occasions. This "trucking effort" was arranged by Alex De Maio, Operations Service Engineer, at the request of the Commission's Director of Construction.

Even safety precautions were not overlooked in this full-scale relief plan. From the outset, it was anticipated that unusual mechanical and electrical hazards would be encountered. Thus, the Safety Practices Section of the Construction Division has maintained close liaison with all Hydro construction employees. This section has been able to report this "job" as accident-free to date—in spite of the unique conditions under which many members of the staff have been working.

#### Financial Aid


Material aid and men were the primary needs those first few days after the storm. But, as clean-up operations progressed, a new need became evident—money to assist those who had been left destitute. At the suggestion of Ontario Hydro employees, a spontaneous drive to raise funds for the Ontario Hurricane Relief Fund was started throughout the Commission five days after the disastrous hurricane. In this way, all Hydro employees working throughout the province were given an opportunity to play some part in assisting those affected by the disaster. As this issue was going to press, an initial cheque for \$51,000, contributed by Ontario Hydro Staff members, was presented to the Fund. This

*(Continued on page 9)*



 **ETOBICOKE Hydro Commission** opened its headquarters to Royal Canadian Army Service Corps personnel while they were participating in the township's flood relief operations.



 **CHEQUE for \$51,000** contributed by Ontario Hydro employees is formally presented to the Ontario Hurricane Relief Fund. Group, left to right, includes Stan King, Hydro Helicopter Pilot; Wm. Loucks, Chairman, Ontario Hydro Unit, Canadian Federation of Engineers and Scientists; Neil McKinnon, the Fund's Honorary Treasurer; Robert Abbott, President, Ontario Hydro Employees' Association; Chief Helicopter Pilot Jim (Blackie) McKay and Bruce Best, a helicopter pilot.



# ALONG HYDRO LINES



## Niagara Electric Club Names 1954-55 Officers

Several Ontario Hydro and municipal Hydro representatives were elected to the executive of the Niagara District Electric Club at the recent elections held in Hamilton.

G. D. Smelzer, of Hamilton, was named President for the ensuing year, succeeding A. S. Jones, also of Hamilton.

W. G. Vivian was re-elected honorary secretary while W. A. Whelan retains his post as treasurer. Elected auditors were J. Allen and P. A. Walker, both of Hamilton.

Vice-presidents elected were: F. B. Sutherland, Beamsville; H. R. Whale, Toronto; J. A. Watson, St. Catharines; John Dawson, Dunnville; J. W. Hammond, Hamilton; L. Harlock, Guelph; N. A. Grandfield, Galt; W. Emslie, Brantford and W. McKenzie, Burlington.

Named to the executive committee were: T. F. Howlett, W. A. Taylor, L. N. Cascoigne, H. W. Chadwick, C. O. Colbert, J. Craig, T. Edmonson, W. Ellison, R. R. Farrell, F. Murphy, O. Russell,

K. J. Farthing, Noel George, F. Gowan, A. W. Bradt, L. Gibson, W. Wilson, J. Harrison, C. H. Hutton, R. W. Eagles, W. Le Gallais, J. H. MacBean, I. O. Mather, J. McGuigan, H. Proctor, Jos. A. Smith, J. G. Sutherland, D. C. McCrady, W. A. McDonald, E. J. McDougall, W. J. Packham, Ray Pfaff, T. A. Scott, J. A. Woodard, D. W. McEwan, R. Berner, J. W. Lucyk, D. Taylor. Executive past presidents are: R. A. McLean, J. H. Jackson, H. W. Kilgour, R. H. Lindley and A. S. Jones, retiring president.

## Otterville Plans Higher Voltage

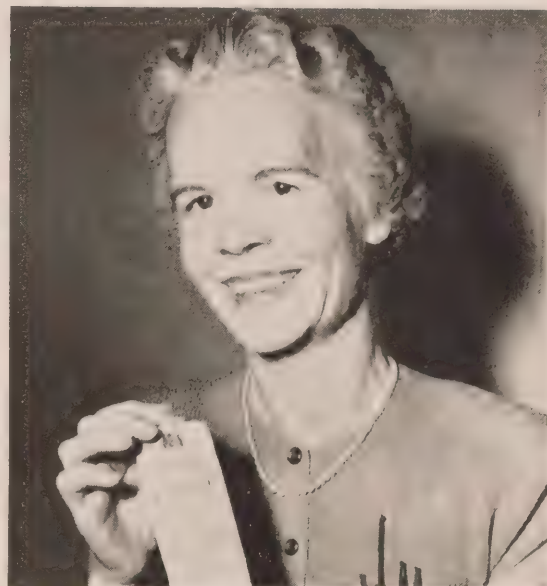
Ontario Hydro has approved an expenditure by the Police Village Otterville Hydro System of \$3,065 to cover the labor costs involved in changing the distribution system to operate at a higher voltage, it was announced recently by Chairman A. Oliver. The work will be financed from available funds and funds estimated to become available. Mr. Oliver reported that Ontario Hydro will provide the material and equipment required to change the distribution system.

## Name Assistant Project Engineer

James A. Stenhouse, P.Eng., Jun. A.S.M.E. has been appointed Assistant Project Manager for Ontario Hydro's Standardization Area "T" which includes Kitchener, Waterloo, Galt, Preston, Hespeler and other Waterloo County municipalities.

Mr. Stenhouse joined the Commission in October, 1949 and was attached to the Frequency Standardization Division's planning group in the London F.S.D. Area office until July, 1951. At that time he was transferred to the main office of the division in Toronto and engaged on construction engineering work. Prior to joining Hydro he served as assistant to the plant engineer of Aluminum Goods Limited.

A native of Winnipeg, Mr. Stenhouse received his primary education there, subsequently attending Weston High School and graduating in Mechanical Engineering from the University of Toronto in 1945. Mr. Stenhouse takes up his new duties this month and will serve under project manager F. O. Price, P.Eng., working from Ontario Hydro's Area "T" base at 280 Victoria Street South, Kitchener.



## SEAWAY PIONEERS

AS far back as 1894, Canadians were thinking about a deep waterway through the St. Lawrence to the Lakehead as the faded silk badge (left), owned by Mrs. D. W. Banton, of Ottawa, (right) proves. The badge was the property of Mrs. Banton's father-in-law, at that time on the staff of a Toronto newspaper. It is considered possible that this Toronto convention was the forerunner of the initial general meeting at Chicago in 1895 of the International Deep Waterways Association, the first Seaway "pressure group."



## Ingersoll Discusses New Building Plans

At a recent meeting, Ingersoll Public Utilities Commission authorized Manager D. M. Seath to secure an appraisal on the present headquarters building for the purpose of deciding on a selling price. Scope of the Ingersoll Commission's operations has increased to such an extent in recent years that space is now at a premium. At the present time, the local utility, which operates the town's electrical, water and sewage departments, is unable to use more than one-half of their present structure. In addition, storage space for trucks and other equipment is limited, necessitating the storage of trucks in local garages, thus presenting a problem during emergency operations, as well as involving an added expense. In view of the fact that the existing accommodation is considered to be ideal for commercial purposes, the local commission is considering sale of the building. Proceeds of the sale would be used to construct a building designed to meet present and future requirements.

## Port Dalhousie Manager Dies

Manager of Port Dalhousie Public Utilities Commission for the past 30 years, John M. Hare died at Pembroke recently while on vacation with Mrs. Hare. Born in Toronto in 1892, the deceased was educated in Toronto and Grimsby. Mr. Hare learned his trade as an electrician at Tonawanda, N.Y. Returning to Canada several years ago, he became associated with the Port Dalhousie municipal electrical system, working up to the position of Manager. A devoted member of St. John's Anglican Church where he had been People's Warden for 10 years and a chair member, he was prominent in Masonic circles. He is survived by his wife, one daughter, and a brother.

## Classified Ads

### FOR SALE

Waterloo Public Utilities has nine, 25-cycle transformers (50-2,000 kva) for sale at reasonable prices. For additional information, please contact: W. G. Woods, Esq., Secretary-Treasurer, Waterloo Public Utilities Commission, 88 King Street S., Waterloo, Ontario.



## FIVE BROTHERS

**S** EVEN brothers may have had seven brides according to the movie title, but here are five Winnipeg-born brothers who have five professional engineering careers. All five Cavanagh brothers got together at the Engineers' Club to fete brother J. Richard who has just gone into private practice. Left to right are: Raymond and J. Richard, of Toronto; Robert; Patrick of Oakville, and Daniel, Toronto. All but Robert, who lives in New Jersey, work in Toronto, and with the exception of J. Richard, who is in the patent field, are engaged in research work. All five brothers are members of the Association of Professional Engineers of Ontario.

## NEGOTIATE NEW AGREEMENTS

**O** NTARIO HYDRO has concluded two new agreements with the Canadian General Electric Co. Ltd., calling for the production of dual frequency refrigerators, and—for the first time—of dual frequency motors for use in large propeller-type fans.

These new agreements will make a significant addition to the steadily growing number and variety of appliances operable at either 25 or 60 cycles which are being made available to customers in remaining 25-cycle sections of Southern Ontario.

Three other major manufacturers—Canadian Westinghouse Co. Ltd., Kelvinator of Canada Ltd., and Frigidaire Products of Canada Ltd.—are already turning out dual frequency refrigerators. Other dual frequency items now being produced by a number of companies include clothes-dryer motors, oil burners, sump pumps, fluorescent light ballasts, and industrial motors and transformers.

Because they require only slight adjustment when the switch to 60 cycles is made, they are making possible big savings to Ontario Hydro over the cost of

the conversion that would otherwise be necessary for straight 25-cycle appliances. On this basis, net savings accruing to the Commission to the end of the frequency standardization program—with the addition of those expected to result from the new C.G.E. agreements—are estimated at more than \$19,000,000.

The dual-frequency units are available at the same price as 25-cycle items, because development and extra manufacturing costs are borne by Ontario Hydro. Hydro spurred their development, initiating negotiations with electrical manufacturers and their trade associations as long ago as 1948.

Customers in remaining 25-cycle areas are being advised to purchase dual frequency appliances wherever possible, as this will be of significant assistance in Hydro's continued efforts to cut down on the cost of the frequency standardization program.

The program has increased in magnitude since 1947, when first estimates were made. The number of customers of all classes has risen from 784,300 to 904,700, and the number of frequency sensitive items per home has almost doubled.



## MAXIMUM EFFORT

(Continued from page 6)

amount does not include an additional \$2,000 donated by employees at the Sir Adam Beck-Niagara Generating Station No. 2 project from their Charitable and Benevolent Fund which was forwarded to the Ontario Hurricane Relief Fund before Hydro's province-wide drive began.

### System Repairs

The materials and manhours contributed to help ease the emergency were just part of the mammoth job Hydro itself had to do in order to repair storm damage to its own equipment.

Commission-owned lines and equipment throughout the affected areas

suffered damage which, it is estimated, will reach the half-million dollar mark when the final figure is computed. Despite this, there were no serious interruptions in the delivery of power to the municipal systems. Many local commissions, however, had many long interruptions of service to customers from damage which, on a preliminary estimate, totals more than \$265,000. It is, therefore, expected that the total combined damage to the Ontario Hydro and the municipal systems will be as high as \$800,000. (Contributed by A. A. Bolte, Horace Brown, and Denis A. Heeney).

## "ON THE LINE" AGAIN

TWO of the four 134,000-horsepower generating units at Ontario Hydro's Richard L. Hearn Generating Station in Toronto have been placed in service following a complete shutdown of the plant last April.

Ontario Hydro has announced that the third unit is expected to be placed on load toward the end of the year and the fourth next spring.

The complete shutdown of Canada's largest fuel-electric station has deprived Ontario Hydro's Southern Ontario System of a substantial amount of generating capacity. The station, with all four units operating at 60 cycles, will have a total installed capacity of 536,000 horsepower. However, hydraulic conditions for the coming winter season, when the year's peak power demands are usually experienced, are still brighter than one year ago when water storage and stream flows in many parts of the province were well below normal. This fact is well illustrated by the following figures with respect to flow of the Ottawa River and storage conditions in several of the major storage basins in Southern Ontario:

On the Ottawa River at Hydro's Des Joachims Generating Station, the mean discharge for the week ending September 19 was 21,365 cubic feet per second as compared with 10,225 cfs. for the corresponding period a year ago. At the Chats Falls plant the flow through the station in the same week reached 28,619

cfs. compared with 16,003 cfs. for the corresponding 1953 period.

Storage conditions in lakes feeding rivers on which Commission generating stations are located also show a marked improvement over last year. Storage for the week ending September 19 this year (expressed in a percentage of their capacity) and the same period last year were as follows: Muskoka 80 percent in 1954, and 72 percent in 1953; Simcoe-Couchiching 33 and 17 percent; Eugenia, 71 and 67 percent; Bark, 96 and 48 percent, and Quinze-Timiskaming, 75 and 63 percent.

With water storage conditions above normal in almost all parts of Southern Ontario and the stepped-up schedule bringing in six, 100,000-horsepower units this year at the new Niagara project, the Commission does not anticipate any difficulty in meeting the coming peak load. Power demands upon the Southern Ontario System in December of 1954 are expected to be in the order of 4,300,000 horsepower, or about eight percent above the 1953 peak.

To meet this demand, Hydro's peak resources, with two units out of service at the Richard L. Hearn plant in Toronto, will probably reach 4,400,000 horsepower or some ten percent above last year. This does not include assistance which may be obtained from Detroit Edison Company and Niagara Mohawk Power Corporation, whose systems are interconnected with the Commission's by means of tie-lines.



NORMAN A. GRANDFIELD

General Manager of Galt Public Utilities Commission, and Immediate Past President of the A.M.E.U., who has been named to represent that city on the committee of the Water Resources Board of Southwestern Ontario. Mr. Grandfield was appointed by city council to sit on the board which is charged with the responsibility of estimating and planning for future water supplies. Mayor Wm. Anderson was named alternative representative for Galt.

### St. Thomas Groundsman Dies

A well-known groundsman with the St. Thomas Public Utilities Commission for many years, Albert E. Babcock of 6 Cypress Street, St. Thomas, died in St. Thomas-Elgin General Hospital after a lengthy illness. Born in St. Thomas 54 years ago, Mr. Babcock spent all his life there except for 16 years following the First World War when he lived in Western Canada. Ill health compelled him to give up work last November.

### Windsor Commission Plans \$850,000 Office Building

Ontario Hydro has approved an expenditure by the Windsor Utilities Commission of \$850,000 for the construction of a new office building at the corner of Ouellette and Elliott Streets, it was announced recently by Chairman W. P. Bolton. The undertaking will be financed from available funds.



# WORLD PATTERN



RETIRING District President H. G. Robertson, left, and O.M.E.A. President Lt. Col. A. A. Kennedy examine memorial plaque in Sudbury's Canadian Legion Hall where meetings were held.

**"A S A SHIELD** — not a sword," was the description W. Ross Strike, Q.C., Second Vice-Chairman, accorded Ontario Hydro's attitude toward its supervisory powers over the local municipal Hydro systems when he addressed the recent annual convention in Sudbury of Georgian Bay District No. 2, O.M.E.A.

Speaking to more than 190 delegates attending the convention—termed "one of the most successful ever held by the Georgian Bay M.E.A."—Mr. Strike said the "present policy of the provincial commission is to allow as much latitude as possible to local commissions, and to give a great deal of weight to the wishes and decisions of the local authorities."

He pointed out that on occasion "Ontario Hydro has been accused of being autocratic. We studiously avoid this, for it must be remembered that we are a monopoly and care must be taken, both on the provincial and local level, to guard against the temptation to be autocratic. We have a great service to perform for the people of Ontario and I feel sure we shall all continue to carry out that service."

## Relationship Explained

Outlining the relationship between Ontario Hydro and the municipalities it serves, Mr. Strike said "it is the outstanding pattern among publicly-operated utilities in the world." He referred to the basic reasons for this statement:

(1) The idea of publicly-owned power in Ontario was born under fortuitous circumstances and embodied the fundamentally sound plan of one source of power supply to participating municipalities.

(2) It was originated when the use of electrical energy was in its infancy in Ontario.

(3) The beginning was small, and the interested municipalities were situated in close proximity to each other.

(4) Realizing that these municipalities had to be kept firmly and securely inte-



## W. Ross Strike outlines unique relationship between Ontario Hydro and local commissions

grated for the scheme to succeed, the provincial commission was given strict supervisory powers over the whole undertaking and the operation of the municipalities.

"Through the years the whole operation has, of course, expanded tremendously, but the original plan has stood the stress and strain remarkably well," declared Mr. Strike. "Because both the provincial and local commissions have done a good job in their respective fields, there has been a minimum of government interference."

### Four Basic Objectives

Referring to the vital need for "continued cooperation" at all levels in the Ontario municipal Hydro field, Mr. Strike said "we at Ontario Hydro are doing everything possible to maintain it, and I am anxious to do everything I can to keep the O.M.E.A. in a position where it will receive as much useful information as possible." He reiterated the four basic objectives of Ontario Hydro. They are:

(1) To keep an adequate supply of power available, both by way of development and the facilities to deliver it.

(2) Maintaining an efficient organization at a minimum of cost.

(3) To maintain a sound financial condition.

(4) To establish a bond of co-operation between it and the local commissions which would be a two-way street, working to the best advantage of both parties, and providing the best possible service to all customers.

"We have been able to keep Ontario Hydro strong," said Mr. Strike, "because political differences have been kept out of the picture. If we can keep up our present standards, we can continue to be free from government interference."

Turning to the subject of municipal contracts, Mr. Strike declared that the Commission feels some consideration should be given to the establishment of



FLORAL rather than Hydro problems seem to be engaging the attention of, left to right, Harry Thiess, Orillia; A. R. Siegrist and Thos. Stevenson, Chesley; E. J. Sims, North Bay, and C. B. Carruthers, Stayner, who were noted admiring a flower-bed during one of the recess periods.

a uniform contract which would be standard for all municipalities, and would automatically go into effect when a new municipality is formed. He suggested that a committee should be established by the A.M.E.U. and O.M.E.A. to study this matter with the Commission.

A highlight of the two-day meeting was the introduction, for the first time, of a panel discussion. The subject was "uniform customer deposits and uniform service charges after normal working hours." Panelists were Mr. Strike, Lt. Col. A. A. Kennedy, President of the O.M.E.A.; H. G. Robertson, retiring President of the district association; W. M. Salter, General Manager, Barrie Public Utilities Commission, and V. A. Ellis, Commis-

sioner, Collingwood Public Utilities Commission.

Important addresses were given also by L. A. Landreville, Chairman, Sudbury Hydro-Electric Commission; John Diblee, Manager of Personnel, Ontario Hydro; Bert Merson, Chairman, Toronto Electric Commissioners, and Don Cameron, Electrical Employers' Association.

### Customer Deposits

In the interesting panel discussion, the subject of customer deposits and service charges was considered in considerable detail in comments from the panelists and from the floor.

W. M. Salter, Barrie, stressed the public relations value of collecting deposits

*(Continued on page 12)*





**INNOVATION** was a panel discussion led by, left to right, W. M. Salter, Barrie; V. A. Ellis, Collingwood; Lt. Col. A. A. Kennedy, and W. Ross Strike, on customer deposits and service calls.



**SUDBURY** Hydro Chairman Leo A. Landreville, spoke in humorous vein on "The Law is After Yo:" during the main convention banquet.



**JOHN** Dibblee, Ontario Hydro's Manager of Personnel, was another featured speaker on the subject of management-labor relations.

only from those whose financial responsibility might be questionable. He also pointed out that his commission pays 2½-percent interest on deposits collected, the same as at the bank, and periodically pays back deposits to customers when they have shown their reliability. A complimentary letter always accompanies such refunds, said Mr. Salter.

B. M. Graham, Manager, North Bay Hydro-Electric Commission, addressing the panel from the floor, said his commission collects a deposit from all classes of customers, without exception, but pays no interest. A resolution recommending that standard policies on this matter, as well as the size of deposits, should be established for all municipalities, was later defeated.

On the subject of service calls after normal working hours, Lt. Col. Kennedy, Chairman, Owen Sound Public Utilities Commission, said he considered it good public relations to take all day and night service calls. The Owen Sound Commission makes a token charge of 50 cents for each call. Mr. Salter reported that the Barrie Commission makes no service calls after normal working hours. Collingwood P.U.C., said Mr. Ellis, does not make "after-hours" service calls.

As the panel discussion was concluding, Mr. Salter referred to the question of indiscriminate cutting off of service if a customer has not paid his bill on

schedule, terming it bad public relations and urging that local commissions use discretion.

#### Pension Plan

Bert Merson, speaking as Secretary-Treasurer of the Municipal Hydro-Electric Pension and Insurance Committee, stressed that greater interest should be taken in pension plans by all local commissions, emphasizing that "a selling job must be done in this regard." He reported that there are now 125 local commissions participating in the Hydro pension and insurance plan, embracing some 6,000 employees.

"We are living in an age when people are pension conscious and those local commissioners who do not take an interest in promoting pension plans among their employees are making it difficult for those who follow in their footsteps."

He urged all employees to take advantage of the fact that they can voluntarily pay additional amounts each month into their pension funds, which would be deductible from income taxes. This not only offers an ideal way of building up savings, but an efficient method of augmenting the ultimate pension an employee will receive. The employee is not obligated, he stated, to continue such additional payments if he feels he cannot afford it.

Don Cameron, Secretary, Electrical Employers' Association, announced that



his association is expanding its safety training programs, and has inaugurated district conferences aimed at commissioners, managers, superintendents and foremen. Those held to date have been very successful, he added. He stated that it is the objective of his association to launch an intensive selling job among the commissions on the vital role of safety. Mr. Cameron has replaced Wills MacLachlan who retired last July but continues to serve the association in a consulting capacity.

#### Labor-Management Problems

In an address on some of the current problems in the labor-management field, John Dibblee, Personnel Manager, Ontario Hydro, said: "Today we are up against an aggressive, determined trade union force that won't lie down. Few of us understand why we have that force."

Continuing, he stressed that "we are all in the grip of a dominating materialistic idea; technological men have achieved miracles, therefore, we have unlimited faith in these men and precious little faith in moral man."

What is the solution? "My experience," said Mr. Dibblee, "has been that when we live integrity and teamwork, we find integrity and teamwork. When management and labor battle for power and control, and strive to force each other into submission, they solve nothing. I believe that road leads to industrial chaos

and national collapse and can well be the means of delivering our free world into the hands of the slave world. When we do the right thing because it is right—not just the seemingly expedient thing—labor catches on fast."

#### Guest Speaker

At the well-attended evening banquet, the guest speaker was L. A. Landreville, B.A., L.L.B., L.D., Chairman of the Sudbury Hydro-Electric Commission. He spoke on the subject "The Law is After You," in which he referred, in a humorous vein, to some of the laws as they affect the average person from day to day. He called upon every Canadian to develop "an ordered view of man and nature which is the necessary prelude to any genuine progress. The overruling ideal is the joint product of philosophy and religion. Not until that ideal is restored will the world be at peace—and the law possesses the framework within which it can securely operate as an instrument of justice and human welfare."

#### Election of Officers

In the election of officers, the nominating committee's slate was unanimously accepted. The new President of O.M.E.A. District No. 2 is C. J. Halliday, Chairman, Chesley Public Utilities Commission. Mr. Halliday has been a member

of his commission for 38 years and has been actively associated with the affairs of his community for more than half a century. The new executive also includes: Honorary President, H. G. Robertson; First Vice-President (second term), Lt. Col. A. A. Kennedy; Second Vice-President, W. J. Cross, Chairman, Hanover Public Utilities Commission; Secretary Treasurer, Robert Butter, General Manager, Owen Sound Public Utilities Commission. Directors are: Harry Thiess, Chairman, Orillia Water, Light and Power Commission; L. A. Landreville, Chairman, Sudbury Hydro-Electric Commission; A. A. Wright, Commissioner, Erin Hydro-Electric Commission; Jack Lowe, Commissioner, Uxbridge Public Utilities Commission; A. T. Smith, Commissioner, North Bay Hydro-Electric Commission; Norman Kidnew, Chairman, Walkerton Public Utilities Commission, and V. A. Ellis, Commissioner, Collingwood Public Utilities Commission.

Grateful appreciation was expressed by all delegates to the International Nickel Company of Canada for arranging a tour of its smelter plant and, later in the evening, for conveying delegates to witness the dumping of slag cars, a fascinating and colorful sight.—by *Denis A. Heeney*.

MEMBERS of the 1954-55 executive, seated left to right: Lt. Col. A. A. Kennedy, C. J. Halliday, President; H. G. Robertson, and W. J. Cross; standing, from left; V. A. Ellis, Norman Kidnew, Leo A. Landreville, Harry Thiess, and Jack Low were elected to office by a unanimous vote.





# THIRD UNIT "ON LOAD"

## Extension of Hydro's Pine Portage Generating Station Nears Completion

**P**OWER RESOURCES of the Northwestern Region will be substantially augmented by the end of the present year as a two-unit addition to the Pine Portage Generating Station, most northerly of Ontario Hydro's three Nipigon River developments, reaches completion.

On September 30, the first of these two new generators went into service. When the second unit is in operation (scheduled for December), the dependable peak capacity will then have been raised to 158,600 horsepower in four units.

Work commenced on the project in May, 1953, and at the peak of construction 180 men were employed. When the original development was built—the two-unit power plant was officially placed in service in June, 1950—provision was made for future enlargement. As a result, the only construction necessary has been the installation of penstocks, turbines, governors, headgate hoists, generators, transformers, switching equipment, and the extension of the powerhouse, and headworks superstructure, by about 112 feet, giving the station an overall length of 285 feet.

Completion of Pine Portage will make this generating station the largest of Hydro's three power plants on the Nipigon River. It will also mean that the three developments—including Cameron Falls and Alexander—will have a total dependable peak capacity of 308,000 horsepower.


### Continuous Growth

This important addition to Pine Portage has been made necessary by the continuous growth of municipal, rural and industrial loads in the thriving Northwestern area of Ontario. This is reflected by the fact that the estimated primary peak demand of 348,500 hp. for 1954 will exceed the 1953 primary peak of 321,650 hp. by 26,900 hp. or about eight percent.

To meet these additional demands, Hydro is also constructing a new generating station at Manitou Falls on the English River. When completed in 1956, this new installation will have a dependable peak capacity of 56,500 horsepower.

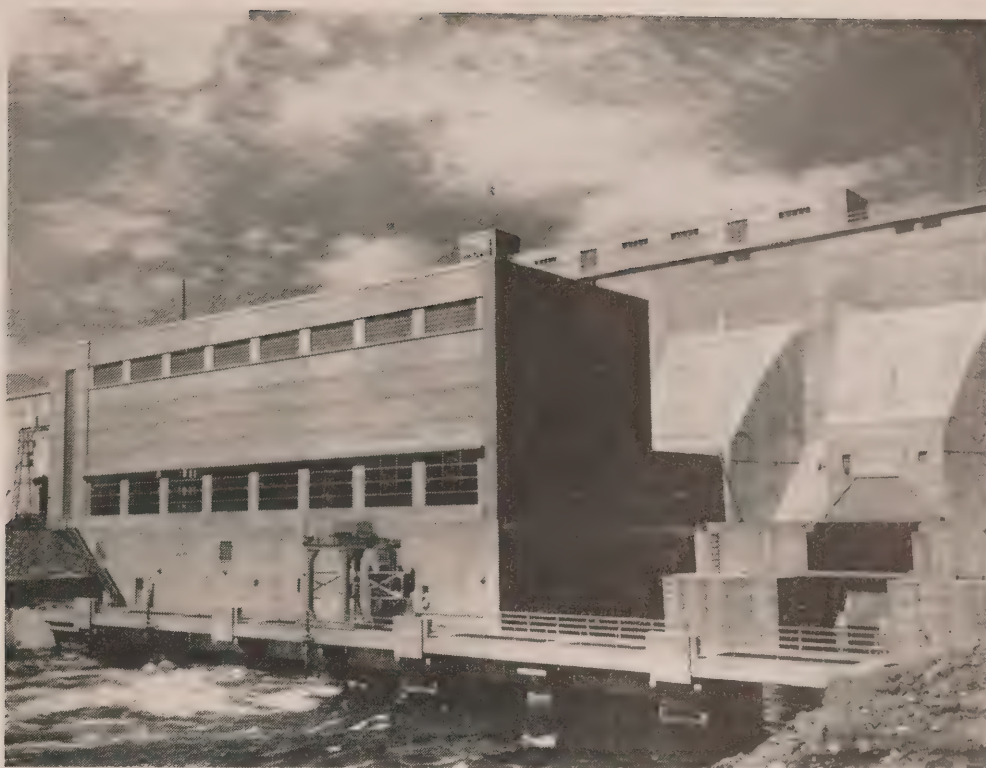
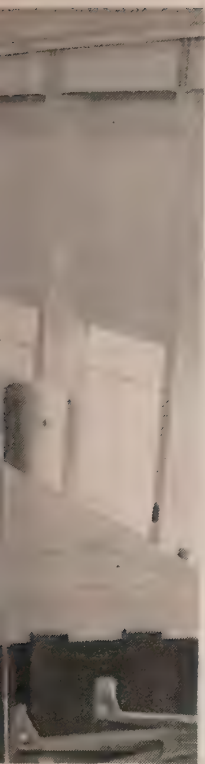
The increase in power resources of Northwestern Ontario is matched by a parallel augmentation in the Southern Ontario system. As Pine Portage's third unit went "on load" this fall, the fourth, 100,000-horsepower unit went into service at the Commission's new Sir Adam Beck-Niagara Generating Station No. 2.—by *A. A. Bolté*.



 **THIRD unit at Pine Portage is now in full service. Powerhouse addition is virtually complete except for the interior painting.**







COMPARATIVE views of the Pine Portage plant show the two-unit installation (above), which was officially placed in service in 1950. Provision was made for the two-unit addition to powerhouse (below).





# LIGHT'S DIAMOND JUBILEE



**Observance of Edison's Triumph With Incandescent Lamp Recalls Electricity's Great Contribution to Progress in Many Fields**

**WHAT** did *you* do last night?

You might have read a newspaper or a book or a magazine. You watched television or listened to the radio. You played cards with your family or friends. You went to the movies or to the theater. You drove to a friend's house to pay a call. Whatever you did, you probably spent an evening that was much like every other evening of your life.

Now, stop and think for a moment what that evening would have been like some 75 years ago. You would have done some of those same things—read, played cards, gone to the theater, called on a friend—but it would not have been as easy nor as pleasant.

The difference is made by electricity—the force used almost every minute, the force that has given a completely new way of life. The difference is what is being celebrated this year in Light's Diamond Jubilee.

Electricity is nothing new. The ancients recognized it as a natural phenomenon. Through the centuries men have worked with it, experimented with it, found ways to produce it and to use it. And just as men, through the centuries, worked to put fire, water and other natural forces to better uses for the benefit of mankind, so they worked to harness electricity and put it to practical use by men everywhere.

By the middle of the last century, great progress had been made. The battery had been developed for the generation of electricity. The electric motor had been invented and put to use. Both incandescent and arc lights had been demonstrated. A dynamo had been invented to generate electricity. Basic elements of our new electrical way of life were in existence. But none had reached the stage of efficiency that was necessary for practical use on a large scale for electricity to give its benefits to mankind.

## **First Edison Experiments**

The telegraph was one exception, and by 1866 it had linked America with Europe. In that same year, a 19-year old boy was working as a telegrapher by day, and experimenting with electricity at night, and in his spare time. That boy was Thomas Alva Edison.

During the next five years and more, Edison worked on improvements for the telegraph, perfecting many inventions of lasting importance. He turned to the telephone and invented the carbon transmitter in 1876. In the following year he



turned to the problem of the incandescent lamp.

Now Edison was interested in more than the perfection of the lamp. Like his telegraph and telephone inventions of the previous year, the lamp he was seeking had to be practical for use on a broad scale. This meant a lamp that would be economical to manufacture and operate, with electrical current that would be economical to produce and distribute.

This is a point which cannot be emphasized too strongly. Like the great industrial research men of today, Edison was interested in the practical applications of science to commercial enterprise. The possible commercial uses of electricity had hardly begun to be realized when Edison started his work. Yet Edison said, "It doesn't matter if electricity is used for lighting or for power. Small motors can be used day and night. Generally the poorest districts for light will be the best for power, . . ." Therefore, it is clear that Edison realized that a system for the economical production and distribution of electric current was even more important than the perfection of the incandescent lamp.

#### Four Essential Tasks

When Edison began his intensive work on the lamp and the system that would make it practical, he steeped himself in every electrical development that bore on his problem. Even with his wealth of information, he found that he had four essential tasks.

First, he had to perfect a lamp that would burn more or less indefinitely on electric current. Furthermore, he had to design this lamp in such a way that it could be manufactured on a mass production basis. Earlier incandescent lamps had been invented, but their lives were relatively short, and they would have been impractical to manufacture.

Second, he had to devise a method whereby a number of these lamps could be supplied with electric current from a single source and yet could be turned on and off individually. Arc lights had been used by this time, but they were connected in series, like old-fashioned Christmas tree lights, and if one were off the others were off too.

Third, when he had devised this system for each group of lights, he had to devise a way to supply electric current to a number of these individual lighting systems from a common source and to find a means to measure how much current each consumed so that the customer



THOMAS ALVA EDISON

**WORKING** as a telegrapher at the age of 19, Edison was experimenting with electricity in his spare time. He completed his work on the incandescent lamp on October 21, 1879.

could make proper payment for his use. Up to this time, each arc light or series of several arc lights had taken its own individual source of current.

Fourth, Edison had to develop a generator that could make enough current to supply these lighting systems. Once he attained this volume of current, he had to find a method by which it could be kept flowing to them steadily.

To those who have been so long accustomed to electrical service, it seems almost incredible that all this had to be done. Yet this was the task Edison set for himself when he began his experiments on the incandescent lamp.

Edison successfully completed his work on the incandescent lamp on October 21, 1879. Two months later, on New Year's Eve, he demonstrated his entire system in Menlo Park. He, thus, opened the gate to an entirely new way of life—the electrical way.

Just as Edison took the existing knowledge of electricity and applied it to the task of furnishing light on a competitive basis with the gas light of his day, so others took Edison's work and applied it to the task of improving on other existing operations and to the opening up of new horizons through electricity. With electricity available for mass use, inventive genius turned to making the tools and appliances with which to use it.

It is said that Edison extended the

range of James Watt's steam engine far beyond anyone's dreams. That is true, but part of the credit must go to those who developed the means of transmission of electricity over long distances. Today power generated in any section of the country is available, through interconnected networks of power lines to other distant areas.

For example, the vast integrated transmission and distribution network in Ontario today is the outgrowth of the creation of The Hydro-Electric Power Commission of Ontario by a special act of the provincial legislature in 1906.

Two years later, 14 municipalities, including Kitchener, Hespeler, Galt, Preston, Waterloo, New Hamburg, Toronto, London, Guelph, Stratford, St. Thomas, Woodstock, St. Mary's, and Ingersoll signed the first Hydro contract for a total of 26,235 horsepower.

The Commission in that year entered into a contract with the Ontario Power Company at Niagara Falls on behalf of these municipalities. In the same year it commenced the building of transformer stations and transmission lines for the distribution of this power to the contracting municipalities. Those first trans

*(Continued on page 18)*



REPLICA of the first incandescent lamp which young Thomas Edison demonstrated at Menlo Park, New Jersey, on New Year's Eve, 1879.



former stations and lines were the forerunners of the vast, interconnected system which Ontario Hydro operates today.

With improved transmission, it was possible to put improved motors to use in industry everywhere. Think of the cost of installing and operating the old line shaft industrial machinery, powered by steam. Compare that with the cost of installing individual motors and operating them on purchased power. This comparison illustrates, simply and graphically, the basic contribution of electricity to industrial efficiency and to the production of more goods at less cost.

#### Electronic Control

Today industry is undergoing another revolution, as electronics takes over the control of machines. Electrical machinery increased the productive power of industrial workers. Now electronics, by increasing the number of machines one worker can control, points to new and more efficient production techniques.

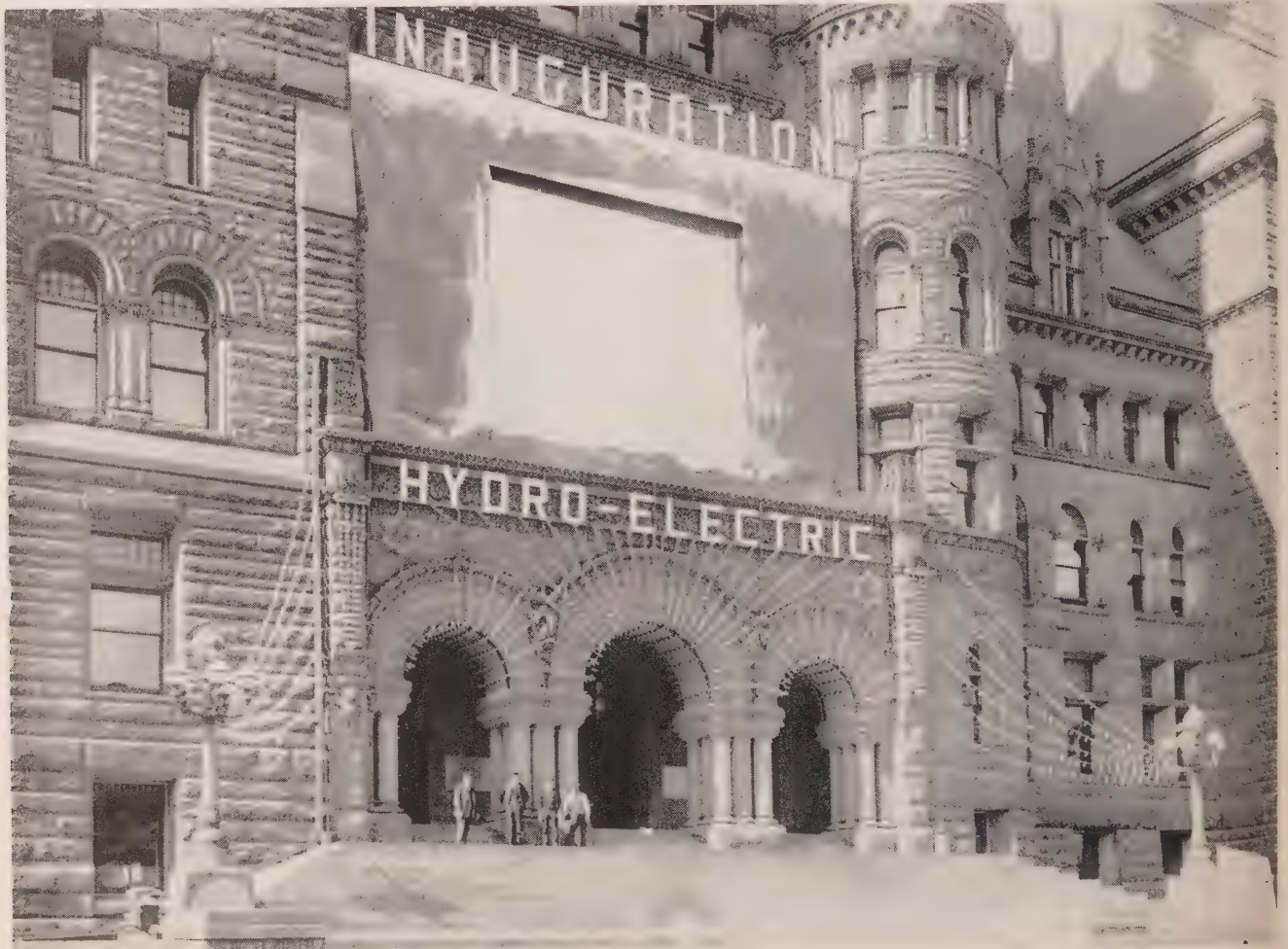
Electronics goes back to Edison and his lamp, to the Edison effect he discovered when exploring the causes of lamps turning black. Other men built on his basic discovery until today broad new horizons are being opened up in science, in medicine, and in everyday living through the application of electronics.

At the present time, attention is focused on the peaceful uses of atomic power, that power which has proved so terrible  
(Continued on page 29)

REPRODUCTIONS of early English and American Colonial lamps: 1—Pewter horologic lamp, 1600; 2—Portsmouth (N.H.) Betty tin lamp, 1760; 3—Tin, oil-lard lamp with reflector, 1830; 4—Glass camphene lamp, 1845; 5—Glass camphene lamp, 1850, and 6—Camphene lamp in use around 1848.



ELECTRIC bulbs decked Toronto's City Hall for inauguration of the Toronto Hydro-Electric System on May 10, 1911. Edison's development of the incandescent light was more fully appreciated in this province after Ontario Hydro started transmitting low-cost hydro-electric power.



# 324<sup>TH</sup> MUNICIPALITY

## Wasaga Beach Formally Welcomed As a Cost Contract Hydro System

**N**OTED Ontario summer resort, Wasaga Beach formally joined the growing Hydro family circle on September 1 this year.

W. J. Nash, Reeve of the Village of Wasaga Beach, and head of the newly-formed Wasaga Beach Hydro-Electric System, handed a cheque for \$103,315.53 to D. G. Ferguson, Manager of the Georgian Bay Region, covering the purchase of the distribution system serving the popular Georgian Bay community from Ontario Hydro.

Although unable to attend the ceremonies marking the occasion, Chairman Robert H. Saunders conveyed a message of greeting in which he said: "We at Hydro are looking ahead to a long and beneficial association with this new member of the Hydro family."

Among the guests attending the official ceremonies in the village community centre were Julian H. Ferguson, M.P. (Simcoe North); George Johnston, M.P. (Simcoe Centre); Lt. Col. A. A. Kennedy, President of the Ontario Municipal Electric Association; H. G. Robertson, President of the Georgian Bay O.M.E.A.; I. K. Sitzler, Director of Consumer Service, Ontario Hydro, and Charles E. Crease, Consumer Service Engineer, Georgian Bay Region. Rev. M. Heslip gave the prayer of invocation.

### Extensive Development

Referring to the extensive development which has taken place at Wasaga Beach in recent years, Julian Ferguson spoke highly of the "people of confidence and vision in the community who knew the Beach had a great future and invested their funds." He said investment in the area now totals "hundreds of thousands



**HYDRO'S Georgian Bay Regional Manager, D. G. Ferguson (centre), accepts cheque from Wasaga Beach Reeve W. J. Nash covering purchase of the system. Looking on, extreme left, is Julian H. Ferguson, M.P., Simcoe North.**

of dollars where not too many years ago there were only sand dunes." Sharing Mr. Ferguson's view, Mr. Johnston, M.P., reported that "when I was elected to the Legislature in 1943, Wasaga Beach was just a police village." He paid tribute to the "very good groundwork laid for the village's subsequent development by the trustees," and stressed the fact that property assessments in the village in 1954 totalled more than one million dollars.

Accepting the cheque of purchase from Reeve Nash, D. G. Ferguson said: "We are passing over to you the responsibility of operating your own Hydro system." He emphasized the need for giving "thorough satisfaction of service at all times," and pointed out that Hydro engineers and accountants would be available to the new Hydro system whenever it requires their assistance.

The regional manager reported that the Wasaga Beach Hydro System would be operated under the village council, headed by Reeve Nash, until the necessary bylaw, creating a commission, receives approval and commissioners are elected to administer the local system.

I. K. Sitzler, Director of Consumer Service, Ontario Hydro, wished Wasaga Beach "every success in its new venture." Words of welcome from their respective

organizations were also expressed by Lt. Col. Kennedy and H. G. Robertson.

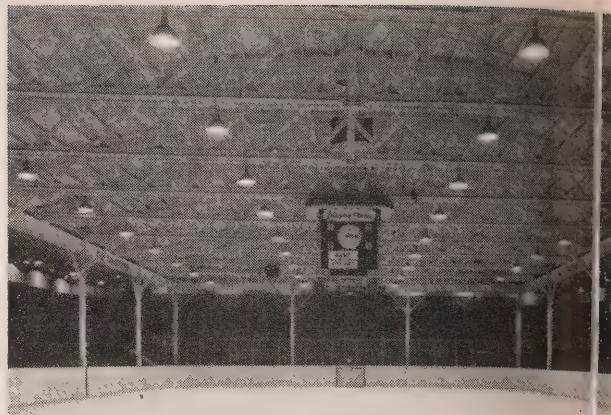
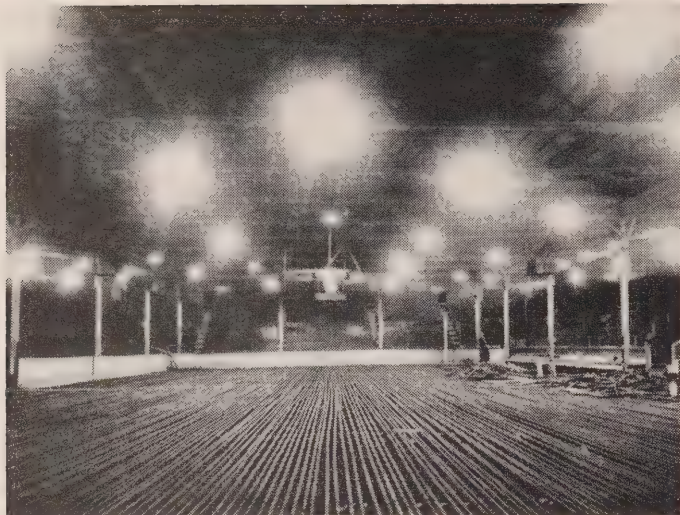
Following the ceremonies, the guests toured the village and attended a reception at the Wasaga Golf and Country Club.

### 324th Municipality

The Wasaga Beach Hydro-Electric System is now part of the Georgian Bay Region and is the 324th municipal Hydro system in the province purchasing power on a cost contract basis. It has, for several years, been a local system owned and operated by the Ontario Hydro.

Wasaga Beach has a long history of electrical progress, dating from 1923. In recent years, the growing community has experienced a considerable increase in the number of Hydro customers and use of electricity. Between January, 1950 and January, 1954, the number of electrical customers in the village increased from 888 to 990. Prior to 1948, Wasaga Beach was served by Hydro's Stayner Distributing Station. In July 1948, to provide better electrical service to customers in the village, Ontario Hydro installed a 2,000-kva transformer station at Wasaga Beach and in June, 1950, owing to the steady growth in the power demand, the station's capacity was increased to 4,000 kva.—by Denis Heeney.





"BEFORE" (left), and "AFTER" (right), photographs illustrate improvement in lighting at Hamilton Forum achieved by following the lighting plan originated by Ontario Hydro's Lighting Service Section.

## ANOTHER HEAVY YEAR FOR

# HYDRO'S "LIGHT" MEN

## Commission's Lighting Service Section Wins C.E.A. Lighting Data Sheet Contest Award

**S**ELECTION of Ontario Hydro's Lighting Service Section as a prize-winner in the Canadian Electrical Association's annual Lighting Data Sheet Contest, for the third year in succession, underlines the important contributions of the Section, as well as other Hydro engineers, to the field of illumination in the province.

This year the Section placed second in the 1953-1954 C.E.A. Contest—open to all utilities across Canada—in recognition of its arena lighting plan for the Forum at Hamilton, Ontario. Since 1950, Ontario Hydro has succeeded in getting into the award class among Canadian utilities in this C.E.A. contest which features the presentation of first and second prizes as well as 10 honorable mention citations.

In the 1950-1951 competition, Ontario Hydro captured first prize for its presentation dealing with control room light-

ing at the Commission's A. W. Manby Transformer Station, as well as second prize for its lighting plan originated for the Jury and Lovell Drugstore at Oshawa. Ontario Hydro scored again in the 1951-1952 contest, winning first prize for the control room lighting designed for the Pine Portage Generating Station; second prize for department store lighting data recommended and installed at Anderson's Department Store at St. Thomas, and an honorable mention for its plan of lighting outlined for All Saints' Church at Peterborough. In the 1952-1953 competition, the Commission's entry, pertaining to the lighting designed for the control room at its new Otto Holden Generating Station on the Ottawa River, gained another first.

These specific examples of achievement on the part of Ontario Hydro illuminating engineers serve to emphasize the

unique function of the Commission's Lighting Service Section since it came into being in 1938.

At that time it was placed under the supervision of the late George G. Cousins, who for many years was regarded as the "Dean" of Canadian Illuminating Engineers. Now operating as a part of Ontario Hydro's Consumer Service Division, the Section is headed by Supervisor Tom Dickson.

### Field Representatives

Two field men, Jack Thompson and T. B. Lawson, cover the province surveying the premises of commercial and industrial customers, as well as public institutions such as churches and schools, who request assistance in improving their lighting facilities. All lighting problems are handled, with the exception of private homes, as it is obviously impossible to enter this vast field. In meeting requests



➤ SUPERVISOR Tom Dickson (left) confers with Bob Wilkie, draftsman; Jack Thompson, field representative, and Bill Girard, draftsman, members of Hydro's Lighting Service Section staff.

for help from the commercial, industrial, and other types of eligible customers, the field representatives gather data from which specifications and blueprints are prepared in recommending the best type of illumination.

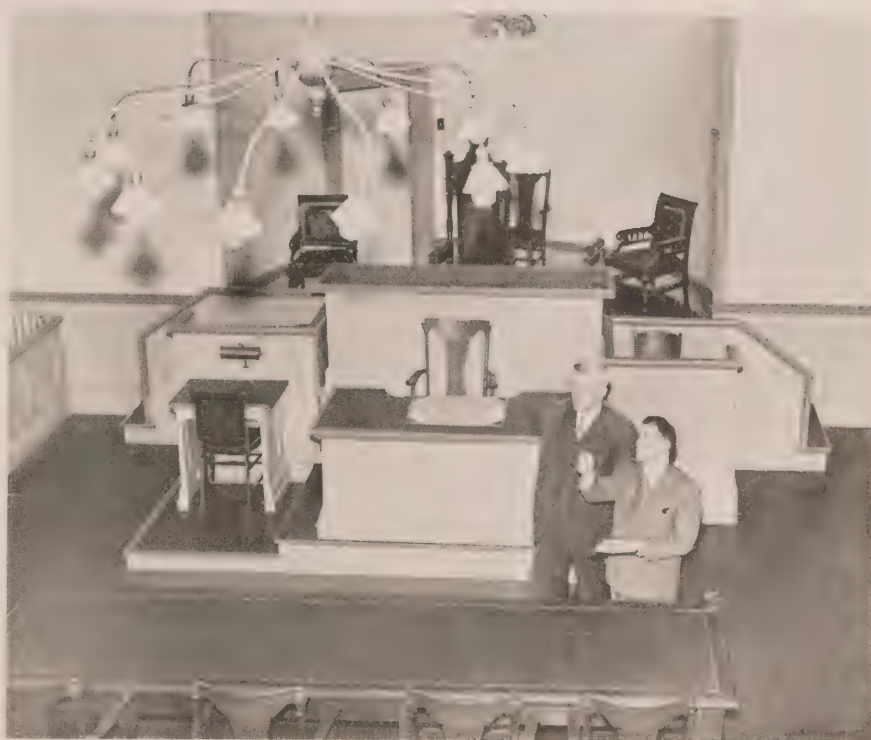
Indicative of the interest in this important public service provided by Ontario Hydro is the record of 307 applications for aid received by the Section last year. By September 1 this year, these illumination specialists had handled 204 requests. Schools frequently call on Hydro for its lighting recommendations, but many letters have been received from commercial and industrial organizations testifying to increased production and operating efficiency with the introduction of Hydro specified installations.

The lighting data sheet prepared for the Hamilton Forum is an interesting example of what the section has been accomplishing in the past few years.

Scheduled for complete renovation, the Forum, with a seating capacity of some 4,000 people, required a new system of lighting suitable for playing ice hockey. The contractor brought this problem to Hydro and followed the recommendations provided.

### 1,000-Watt Lamps

Replacing the dome reflectors and over size lamps, 11 rows of four, deep-bowl, alzak aluminum reflectors, with 1,000-watt lamps, were suspended from the rafters over the ice surface. Two similar fixtures were located over each goal. A total of 76 standard dome reflectors, with 100-watt lamps, were used in the spectator sections of the large arena. When



the installation was completed, the average illumination over the ice surface was 53.1 foot candles.

General satisfaction with this result was manifested by Forum officials in a letter from S. J. Bibby addressed to Mr. Dickson:

"On behalf of the Hamilton Forum, may I take this opportunity to thank the Lighting Service Section of Ontario Hydro for the splendid service rendered.

"In purchasing the old arena and renovating it into what is now known as the Hamilton Forum, we were faced with a serious lighting problem. Our contractors called upon the Lighting Service Section, and the results of your efforts were more than satisfactory.

"Arena Managers from coast to coast, who have visited us, have all remarked on the excellent lighting."—by *Horace Brown*.



# LANTERNS TO LUMINAIRES



HEDLEY F. DAVIDSON

Saluting Light's Diamond Jubilee This Year,

Hedley F. Davidson, Illumination Section, Ontario

Hydro Research Division, Traces the History and

Progress of Street Lighting From Early Times

**I**N EARLY TIMES, the only means of street lighting was by torches, carried by travellers principally as protection against highwaymen. Later, night watchmen could be hired to assist wayfarers to find their way after dark. In London about the middle of the 13th century, regular watchmen were appointed. At this time the "cresset" was most commonly used and consisted of a barred pot containing a coiled rope soaked in pitch or resin and mounted on a long forked pole. The cressets provided a considerable amount of smoke and smell and a small amount of light. Torches and cressets were the earliest form of portable street lighting, the most modern being our present automobile headlights.

The earliest fixed street lighting seems to have been iron baskets of burning wood. In Paris in 1318, there were three fixed outdoor lanterns, one in a cemetery, one over the door of the Chatelet, and a third over the River Seine as a mariners' light. In 1409 there were widespread disorders in Paris and the authorities ordered a lantern hung in each street where they remained in use for about four years. These early lanterns are described as a circular framework of wood or metal with a cover of parchment, cloth or hog's bladder to protect the candle from the wind. The candles were chiefly made of tallow.

The Lord Mayor of London, in 1416, ordered the more prosperous householders to hang a lantern in front of their house from All Hallow's to Candlemas (No-

vember 1 to February 2). This practice continued for about 200 years, although the burning hours per night were increased as well as the number of nights per year. (*Some early street lighting equipment is illustrated in Figure 1.*)

The practice of requiring householders to provide street lighting either by lanterns hung outside, or by candles in front windows was prevalent in the larger centres throughout Europe in the 15th and 16th centuries. This form of street lighting was never very successful, chiefly because of its dependence on more or less unorganized citizens for its installation, operation, and maintenance.

One of the first municipalities to take the responsibility of the street lighting was Paris where La Reynie, Lieutenant of Police, reorganized the fixed street lighting in 1667. La Reynie made an intensive study of street lighting and gained considerable fame as a street lighting engineer. His lanterns used candles weighing one quarter of a pound and were hung at all important intersections.

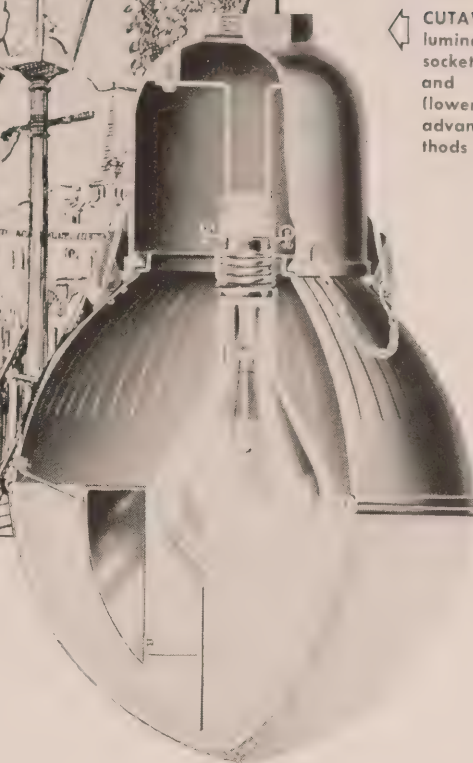
In 1736, the authorities in London took the responsibility for the street lighting out of the hands of the citizens. Two years later there was a total of about 15,000 lanterns in use in the streets of London. Oil lanterns gradually replaced candle lanterns, and were considerably improved during the 18th century. At first animal oils were used as fuel, then vegetable oils, and finally mineral oils. Polished metal reflectors were used in



THESE modern street lighting fixtures on Toronto's Sherbourne St. bridge are typical of the improvement programs being effected by many municipalities throughout Ontario.



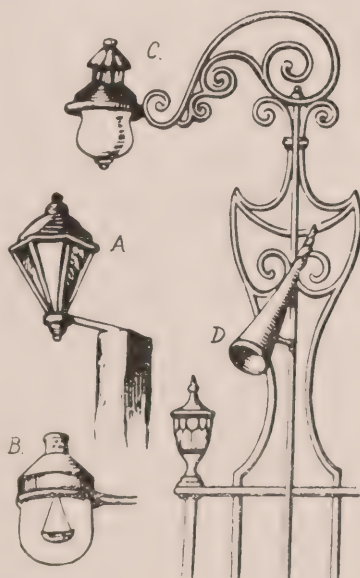
◀ CUTAWAY view of modern luminaire with mogul multiple socket, polished metal reflector, and glass globe refractor (lower left), shows the marked advance in street lighting methods since lanterns were used.



oil lanterns as early as 1745, and their use was an important step in the attempt to control the distribution of light from lanterns.

On this continent, early street lighting practice followed that of Europe but was adapted to the more crude modes of living. From the earliest settlements up to the 18th century, pine knots (candlewood) were employed. These were supplemented by tallow dips, rush lights etc. In the latter part of the 17th century, oil lanterns burning crude whale oil were being used. The discovery of oil in Pennsylvania in 1859 resulted in the rapid introduction of kerosene as a lantern fuel.

FIGURE 1—Early street lighting equipment: A—Lantern, usually mounted on a post about eight feet high. B—Early glass-enclosed oil lantern using a cotton wick floating in the suspended pan of oil. C—Some of the ornate iron work used in front of aristocratic households. D—Metal cones were used to extinguish the torches which once provided light.

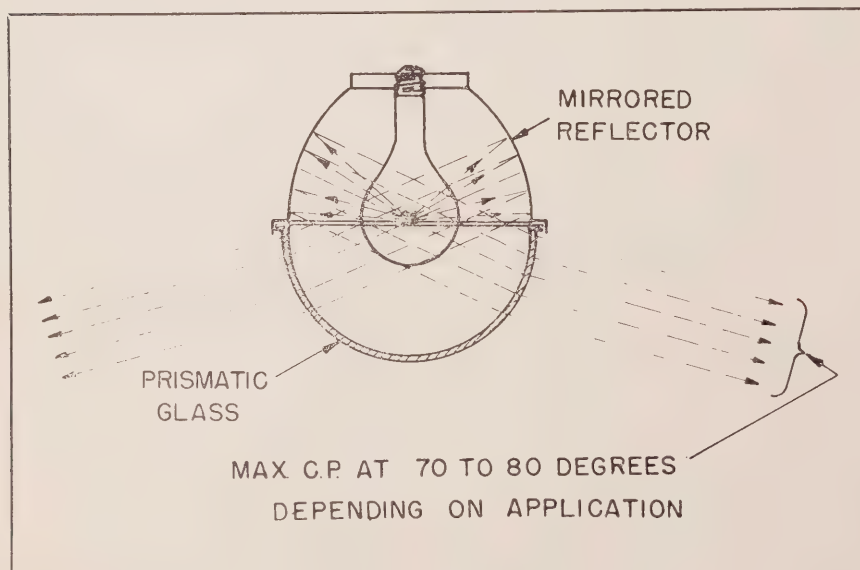
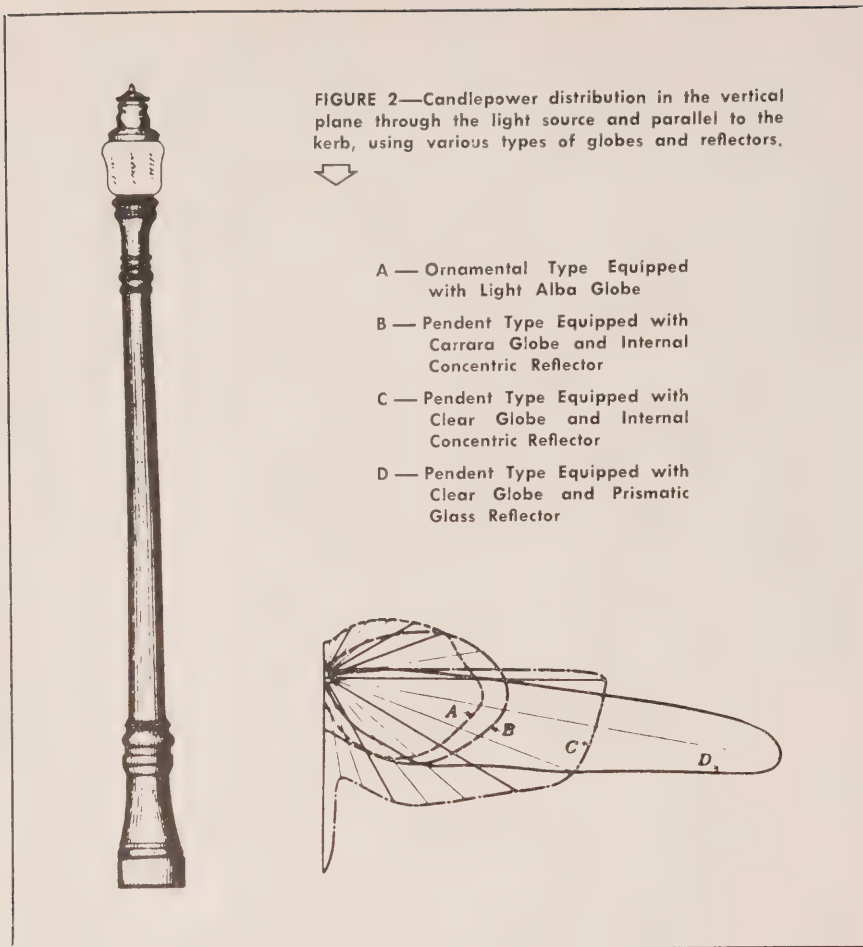


In New York, in 1697, the street lighting was organized under municipal auspices. This was provided by a pole projecting from every seventh house on the end of which was a lantern. The lanterns were not lighted when there was a "light moon." The first public lamp posts were installed in New York in 1762.

Gas lighting started at the beginning of the 19th century. William Murdock, in England, is generally credited with being the first to demonstrate, on a large scale, the use of gas as an illuminant. The first gas mains in New York were hollow wooden logs laid along Broadway from the Battery to Canal Street. Gas burners were gradually improved, and about 1885

(Continued on page 24)





**FIGURE 3—Showing the use of a reflector and a refractor in a modern luminaire to obtain a high concentration of light between 70 and 80 degrees.**

Welsbach produced his first successful gas mantles.

The experimentation with electric arc lamps was greatly increased with the development of dynamo-electric generators. In Europe the first commercially successful arc lamp was invented by Jablochhoff. His "electric candles" consisted of two thin strips of carbon bound closely together and separated by an insulating material. These "candles" had to be used on alternating current in order to burn both carbons uniformly and their burning time was about 1½ hours. The development by Brush, and others, of the series arc lamp with shunt regulators and "all-night" carbons proved quite successful. In 1880 part of Broadway was illuminated with arc lamps.

About this time the incandescent lamp was being developed to a commercial stage. The series burning carbon lamp was not very successful. Early in the 20th century the metalized carbon lamp (Gem) appeared, and its 25-percent increase in efficiency was important to the electrical people who were rather worried about the success of the gas mantle. Finally, in 1914, the gas-filled tungsten lamp appeared and soon proved its superiority over all previous illuminants. At the present time electric discharge lamps such as mercury vapor, sodium vapor and fluorescent are receiving wider acceptance for street lighting where high levels are desired.

### Progress in Luminaires

The increase in the number and speed of vehicles prevalent to-day requires much greater amounts of street illumination than ever before. In order to provide the greater illumination economically it has been necessary to improve the luminaires in order to increase the amount of light falling on the street.

The first reflectors were little more than hoods to protect the light source from rain. The use of silver plated reflectors by Preigney and Chateaublanc in 1745 was the first major step in controlling the light. These oil burning lanterns, called "reverbere," were further improved and were usually mounted 30 feet above the roadway. Their success was so marked that M. Sortine, writing at that time, says, "The light diffused by this reverbere is so brilliant that it is impossible to think that the future has, in reserve, anything better!"

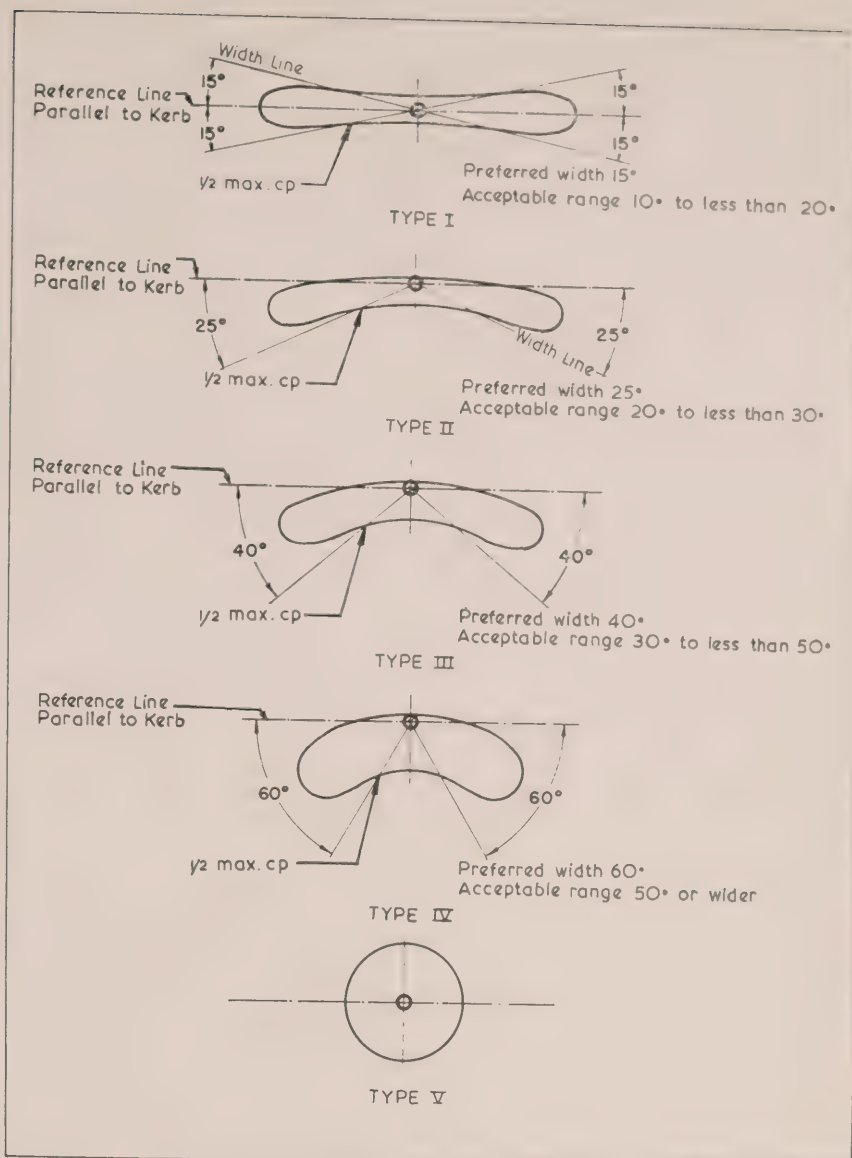
Opal ball globes were used to diffuse the light but gave little control other than reducing the brightness of the lamp.

Early in the 20th century, clusters of up to five opal globes were considered to be quite a fancy installation for business streets. The diffusion of the light by the globes served to light up the fronts of the buildings, but these units were very wasteful in providing street illumination.

Prismatic glass enclosures or partial enclosures appeared about 1908. The prisms by refraction and reflection served to control the light to give a better distribution of the illumination on the street. The interest in prismatic glass increased with the development of the gas-filled tungsten lamps because the concentrated filament allowed more accurate control of the light. (Figure 2 shows the improvement in light distribution obtained with various equipment.) Prismatic refractors were first of the "bowl" type, but later "band" and "dome" types were developed. It was found desirable to enclose the lamp and refractor in a clear or rippled glass globe in order to minimize depreciation due to dirt collection on the surfaces of the lamp and refractor.

Modern luminaires usually consist of a combination reflector and refractor for most efficient utilization of the light. The reflector over the upper part of the lamp can be made to efficiently concentrate the light at a vertical angle of 65 degrees from vertically downward. The refracting glass globe located below the reflector is designed to lift the angle of maximum concentration to about 75 degrees and also to direct the light predominantly up and down the street. (This is illustrated in Figure 3). The control of the light, up and down the street, and at vertical

(Continued on page 29)



ILLUSTRATING improvement achieved on a city thoroughfare by installing 18,600 lumens lamps, mounted at 32 feet, right photo.



BEFORE



AFTER



FIGURE 4—Lateral light distribution in the cone of maximum candlepower as recommended by the American Standard Practice for Street and Highway Lighting



# ECONOMIC ANCHOR

**W. Ross Strike, Hydro's Second Vice-Chairman, Discusses Importance of St. Lawrence Project and Possibilities of Atomic Power Development**

**A**CQUISITION of property for the St. Lawrence Power Project has given rise to problems which have become greatly exaggerated in the public mind.

This was the opinion expressed by W. Ross Strike, Q.C., Second Vice-Chairman, Ontario Hydro, during an address at the recent annual two-day convention of District 3 O.M.E.A. in Fort William.

Mr. Strike took the opportunity of placing this much-publicized question in its proper perspective while discussing legislation respecting the St. Lawrence project. He said that after authorization to proceed with the development had been received, Ontario Hydro was asked by the International Joint Commission to redesign legislation with regard to the "taking over of property."

Property-owners who will be affected by the project can receive compensation or be rehabilitated, he said. "Rehabilitation poses the real problem, because it opens up a completely new field in property acquisition, but this problem can and will be solved."

A guest speaker at the annual banquet attended by more than 200 delegates and guests, Mr. Strike hailed the official com-



**GUEST speaker, Bert Merson, Chairman, Toronto Electric Commissioners, discusses the Municipal Hydro-Electric Pension and Insurance Plan at a District 3 Convention luncheon. Seated, left to right: President J. D. Phillips, W. Ross Strike, Hydro's Second Vice-Chairman; Fort William Alderman A. F. Hawkins, and C. H. Moors, Fort William Hydro-Electric Commission.**





DISTRICT 3 delegates, including their A.M.E.U. guests, took time out for a visit to Kakabeka Falls on the Kaministiquia River. The falls are situated 18 miles west of the Lakehead.

mencement of work on the St. Lawrence Project as one of several great events which highlighted the month of August, 1954.

#### Economic Anchor

"The economic life of Canada has always revolved around the St. Lawrence watershed," he stated.

Down through the years it has been the economic anchor for this country, and it will continue to be so, Mr. Strike continued.

"I have no doubt that when the 2,200-mile long seacoast—for the seaway will eventually make the shores along this great waterway a seacoast—is completed, it will have a tremendous impact on Canada, and indeed on the whole of North America. It will mean that the Great Lakes will be the industrial centre of the world."

A second significant event of that historic month, he said, was the official opening of the 1,828,000-horsepower Sir Adam Beck-Niagara Generating Station No. 2. The Commission's Second Vice-Chairman noted that greater engineering

difficulties were encountered on the Niagara project than are likely to be met on the St. Lawrence power project.

August was also marked by progress in Britain on nuclear fission for the generation of electric power, Mr. Strike said. "We have been in close touch with Britain," he stated, "and we are assured that within two, or possibly three years, that country will have a plant developing atomic power for industrial purposes."

The speaker explained that in "splitting" the atom, about one million degrees of heat are generated within less than a second. Some medium must be found to control it, he stated. Mr. Strike indicated that water could constitute one such control medium. However, at the present time, he added, atomic energy can only be used as a fuel, but he said there was always the chance that some new process would be uncovered whereby such energy could be transformed more directly into electric power.

Mr. Strike pointed out that atomic energy is opening up "a whole new field to us" but warned that "uranium is in such plentiful supply throughout the

world that within 30 years we will be able to blow each other to pieces in a matter of hours. Perhaps we may find our greatest safety in this saturation."

Presiding at the initial noon luncheon, and at succeeding sessions, was President J. D. Phillips, Schreiber Hydro-Electric Commission, while the welcome to delegates was extended by Alderman A. T. Hawkins, Acting Mayor of Fort William and Chairman of the Fort William Industrial Board. Registration and all details of the convention were under the excellent direction of Secretary-Treasurer Arthur W. H. Taber, assisted by Thomas Leenev, both of the host city.

Luncheon speakers included A. W. Manby, Hydro's Assistant General Manager—Administration, who told his audience that good load prospects existed in the Northwestern Region. With completion of Ontario Hydro's Manitou Falls project and the addition of generating units at Pine Portage on the Nipigon River, the Northwestern Region would have a surplus of power. He expressed the hope that a tie-in between

*(Continued on page 28)*





W. ROSS STRIKE, left, watches as E. R. Freeman, Port Arthur, receives the president's gavel from J. D. Phillips, Schreiber, while Mrs. H. E. Hainsworth, Mayor of Sioux Lookout, and the only lady delegate, and A. W. Manby, Assistant General Manager—Administration, look on.



GALT Commissioner Harvey Hawke, left, Ottawa Hydro Manager Fred G. York, Kenora Superintendent Fred Greenslade, and Sioux Lookout Chairman Arthur Schade disprove the adage that the East and West cannot meet.



"HERE'S how it works," Walter Looney, Hydro's Northwestern Region Operations Engineer, left, tells R. A. Hallonquist, Nipigon, and Chairman J. R. Pattison and Manager A. W. H. Taber of Fort William during a visit to Hydro's Kaministiquia Generating Station.

the Northwestern and Northeastern Regions would be possible at an early date.

Bertram Merson, Chairman of the Toronto Hydro-Electric System, spoke on the subject of municipal Hydro pensions and insurance in his capacity as Secretary-Treasurer of the committee in charge of this important function. He said there are approximately 125 commissions embracing 6,000 employees participating in the scheme.

#### Northwestern Resources

At the afternoon business sessions, David I. Nattress, Manager of the Commission's Northwestern Region, presented a report on the power resources of Northwestern Ontario.

As at December of this year the Commission's dependable peak capacity in the region would be approximately 322,000 kilowatts, an increase of about 60,000 kilowatts over 1953, wholly accounted for by the completion of the third and fourth units at Pine Portage. To meet the anticipated loads between 1954 and 1958, the Commission plans to raise its dependable peak capacity to about 363,000 kilowatts.

Mr. Nattress stated that the total undeveloped hydraulic resources of the Northwestern Region are approximately 610,000 kilowatts. Within transmission distance of Port Arthur and Fort William, he said, there are potential developments on the Albany River which might amount to 169,000 kilowatts. However, little is known, to date, about certain of these sites which are estimated to have a potential capacity of 147,000 kilowatts.

"These developments would probably all be relatively low head and expensive because of the nature of the country and its remote location."

Continuing his report, Mr. Nattress stated that municipal loads which amount to a present figure ranging between one-quarter and one-third of the total distributed load of the region, increased by about 4 percent in 1953 over 1952. Rural load, representing only about 2½ percent of the total, had increased by 24 percent.

"The rural development has taken place largely since 1945, and probably has brought about a greater improvement in overall living comfort among the people outside the urban municipalities than all other factors combined. As of September 1 this year, there were 9,250 rural customers served by 1,660 miles of rural line."

The loads of the industrial customers served directly by the Commission account



for about two-thirds of the total distributed load of the Northwestern Region. These customers are principally mines and pulp and paper mills. In both these industries, rapid development is taking place.

### Labor Relations

Another featured speaker was John Dibblee, Manager of Personnel for Ontario Hydro, who discussed employer-employee relations. He said that the views of labor must be considered today because labor represents a force which in some cases is even stronger than management.

"Organized labor has had to fight for its life in defiance of harsh and repressive labor legislation," he said. "When we were top dog we abused our power without realizing it. Now when labor takes a leaf out of our book, our consciences are outraged. Management philosophy, now developing, involves a change in attitude that looks upon labor as equals and treats them as equals. We have to open our eyes to the 'new realities' of the present and adjust our thinking to these realities. Legislation, no matter how good, is not enough. We need a new moral leadership in industry—we must become trustworthy no matter how untrustworthy the labor opposites appear to be."

Mr. Dibblee drew attention to the relations which have existed between Hydro and labor at the Niagara Project by saying that in three-and-a-half years there were less than 24 grievances, all but one being settled at the first stage. "The result," he said, "was that we had a smooth-running effective job."

Donald Cameron, Secretary-Treasurer and Engineer, Electrical Employers' Association, announced to the delegates that conferences on accident prevention are being scheduled in Southern Ontario for municipal managers and commissioners. He expressed regret that transportation difficulties and distances made similar meetings unfeasible in the northern areas. However, he announced that round-table discussions are being planned in various centres as an alternative.

Another of the main speakers was M. J. McHenry, Consultant, Consumer Service Division, who urged the promotion of adequate wiring by electric utilities. President of the Canadian Adequate Wiring Bureau, Mr. McHenry said thousands of homes in Ontario have inadequate wiring because future electrical requirements were not taken into con-

sideration when the first installation was made.

Mr. McHenry suggested that a local council be formed at the Lakehead for the purpose of promoting a program of adequate wiring. Such a council, he said, would be supported by the Electric Service League of Ontario.

### Officers Elected

The business session included the election of officers as follows: Robert H. Saunders, Honorary President; Lt. Col. A. A. Kennedy, Honorary Vice-President; I. D. Phillips, Schreiber, Past President; Ernest F. Freeman, Port Arthur, President; C. H. Moors, Fort William, First Vice-President; J. R. Pattison, Fort William, Second Vice-President. Directors—Dr. D. P. Jeffries, Sioux Lookout; O. S. Jackson, Dryden, and Mayor J. V. Fregeau, Kenora.

Featuring the convention were two interesting visits, including a bus trip to the 128-foot high Kakabeka Falls and Hydro's Kaministiquia Generating Station on the Kaministiquia River. Delegates also toured the Canadian National Ore Dock and Saskatchewan Pool 7 Grain Elevator.

Next year, the convention will return to the Lakehead for their annual convention when Port Arthur will be the host city.—by A. A. Bolté.

## LIGHT'S DIAMOND JUBILEE

*(Continued from page 18)*

an instrument of destruction in war. Atomic research would have been impossible without electricity, just as atomic production is still impossible without electricity. When atomic power is applied to the ways of peace, as it certainly will be, it will be translated into electrical power.

These are only a few of the applications of electricity to homes and industry, to science and knowledge, to the past and the future. It is difficult to realize that all this has been accomplished in only the 75 years since Edison invented the incandescent lamp, that this has been accomplished within the lifetimes of many people now living. But realizing this, it is not too difficult to imagine that there will continue to be progress through electricity along lines that few people would believe possible.

This year, in Light's Diamond Jubilee, the world celebrates the first 75 years of electrical progress. No one knows what further progress will be celebrated in Light's Centennial, 25 years from now.

## LANTERNS TO LUMINAIRES

*(Continued from page 25)*

angles of 70 to 80 degrees, is necessary in order to provide effective street lighting at reasonable luminaire spacings.

### Classification of Luminaires

The American Standard Practice for Street and Highway Lighting classifies street lighting luminaires in five types in accordance with the distribution of the light both laterally and vertically. There are very few cases where one or more of the five types will not meet all street lighting situations.

The most common method of graphically representing the distribution characteristics of a luminaire is to show the candlepower distribution in a vertical plane and lateral cone. The vertical plane chosen is the one containing the light source and the point of maximum candlepower of the beam. The lateral distribution is the candlepower distribution in a cone with its apex at the light source and containing the point of maximum candlepower in the beam.

*(The lateral distributions of the five types are illustrated by the diagrams in Figure 4.)* The Width line is the radial line (the one making the largest angle with the Reference line) which passes through the point of one half maximum candlepower.

Type I luminaires are suitable for relatively narrow streets up to about 30 feet in width, where the luminaires can be located over or near the centerline of the street. The four way Type I is intended for mounting over the center of a right angle intersection.

Type II luminaires are usually used for side mounting on relatively narrow streets.

Type III luminaires are the most widely-used type for other than residential streets. They are suitable for side mounting on streets having a width of 30 to 70 feet. On streets 40 feet wide and wider, luminaires should be located on both sides in a staggered arrangement.

Type IV luminaires find use on very wide streets where luminaires are located on both sides and opposite each other. These are generally business streets having heavy traffic and pedestrian density.

Type V luminaires are used where broad areas are to be lighted such as wide intersections, parkways etc. These luminaires have a symmetrical distribution around the vertical axis of the luminaire.







ONTARIO HYDRO

NEWS



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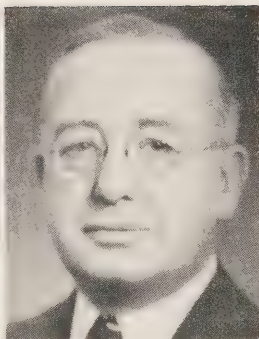


# CHRISTMAS GREETINGS - 1954



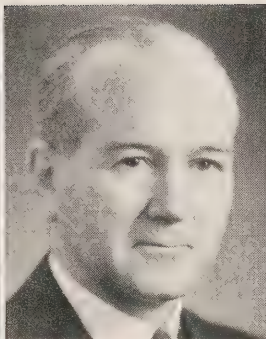
*W. Lundes*

CHAIRMAN



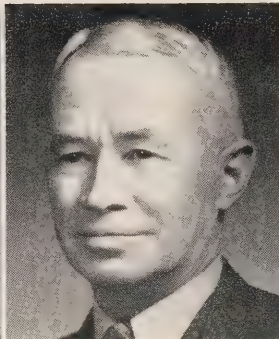
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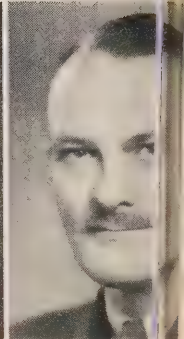
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ASSISTANT GENERAL MANAGER—  
ENGINEERING



*A. H. M. Le*

ASSISTANT GENERAL MANAGER—  
ADMINISTRATION

ANOTHER year has come and gone, and it is time, once again, for us to join in the festivities of Christmas, and to unite in solemn contemplation of its deeply spiritual significance.

At this time it is appropriate that we should pause briefly to recount the many blessings and the numerous challenges of 1954.

For all of us associated with the great public enterprise of Hydro, it was a season of rich and historic accomplishment. Our achievements on behalf of the people of this vast province would have been impossible, however, without the unswerving devotion of every person engaged in this important undertaking.

Thus, to all members of the Hydro family, wherever they may be, to the men and women of labor, to our customers, and to our contractors and suppliers and their staffs, we send our warmest wishes for a very Merry Christmas and a Happy New Year.

# ONTARIO HYDRO

# News

December, 1954

Vol. 41

No. 12

Published by

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO  
620 UNIVERSITY AVENUE, TORONTO



## SPIRIT OF THE NORTH

AS Christmas approaches, millions of youngsters turn their eyes northward to the mythical land where that jolly old gentleman, Santa Claus, is reputed to have his dwelling place. For the older ones, too, the North, with its vast stretches of snow and evergreen, seems to symbolize the true spirit of the Season.

In Ontario's broad northland, blessed with an infinite variety of seemingly limitless resources, it would seem that Santa Claus, in the past few years, has been distributing favors with a rather free hand. In the period prior to and during World War II, this portion of the province developed on a more modest scale than the Southern section. In the past few years, however, there has been a quickening of the economic pulse of the "North," accompanied by an almost phenomenal increase in population and industrial activity.

Evidence of such expansion can be found in many places throughout Northern Ontario. During November, for example, Ontario Hydro took over the distribution system at Blind River, a bustling lumbering community some 100 miles west of Sudbury. Supplied by a private power company since 1906, Blind River has literally "bust its britches" electrically in recent years. It became evident earlier this year that the town faced a power shortage because the local power company was unable to meet the community's growing power needs. Solely dependent on its lumber industry for a quarter-century or more, Blind River has come into recent prominence with the discovery of important uranium deposits in the district.

On December 3, the important railway centre of Ignace, on the transcontinental C.P.R. line between Fort William and Dryden, joined the Hydro "family."

Blind River and Ignace are only two of several communities which have become associated with the Ontario Hydro system within the past four years. Such names as Hearst, Kapuskasing, Iron Bridge, Wikwemikong, Noelville, Killarney, and others come to mind as we consider the growth of Hydro service in Northern Ontario.

The Blind River system will be administered by Hydro through its Algoma Rural Operating Area which covers 2,250 square miles between Sault Ste. Marie and Sudbury. Further evidence of Ontario's Northern expansion can be found in the growth of Algoma R.O.A. (established in 1951) which served only 110 customers in December, 1952. By October 1, this year, it was handling distribution of power to 827 customers over 269 miles of line.



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SUBSCRIPTION: \$2.00 PER YEAR

Authorized as second class mail.  
Post Office Department, Ottawa.

## CONTENTS

	Page
Manitou Makes Headway .....	2
Open New Laboratories .....	5
Hydro Day .....	6
Foto-News .....	9
Back to the Land .....	10
New Trend .....	12
Complete Picture .....	14
Liability Becomes An Asset .....	16
The Carols of Christmas .....	18
St. Lawrence Councils Endorse Hydro .....	21
Ontario Hydro Scholarships .....	22
Honor Retiring Director .....	25
St. Lawrence Salute .....	26
Christian's Christmas Gift .....	30
Along Hydro Lines .....	32
This and That .....	36

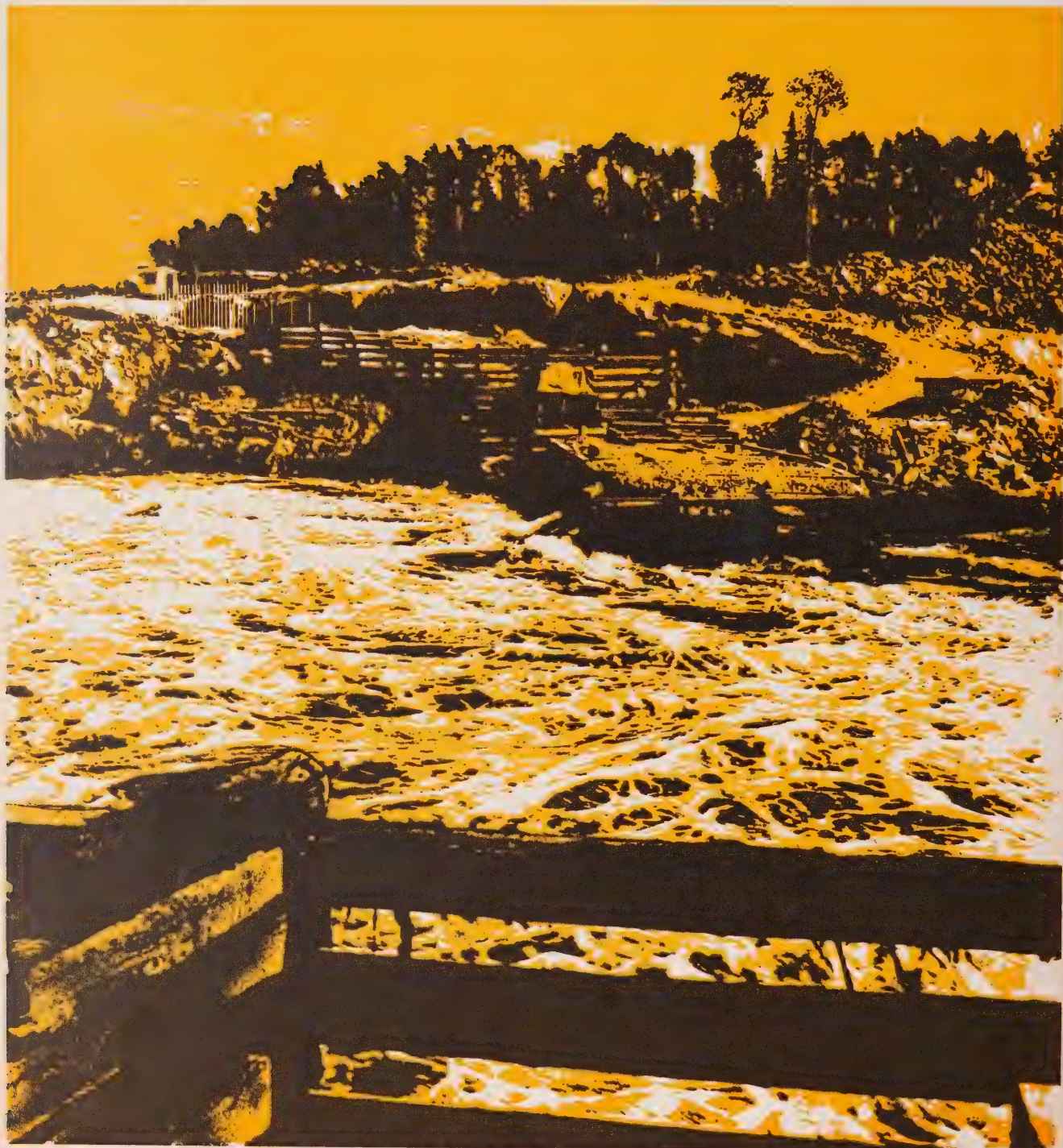


## BUY CHRISTMAS SEALS

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# MANITOU MAKES





# HEADWAY

*Now past the pioneering stages, Hydro construction crews prepare for start on main dam and powerhouse at remote Northwestern Ontario power development*

By A. A. Bolté

**A**LONG the English River in northwestern Ontario, a Hydro construction force of some 575 people is literally "digging in" for the second stage of a battle with Nature.

Their job is the taming of this northern river at the site of the Commission's new Manitou Falls Generating Station.

Located some 1,400 miles northwest of Toronto, the project is scheduled for completion in 1956. It will have a dependable peak capacity of 56,500 horsepower to meet the increasing power requirements of the rapidly-developing northwestern part of the province.

Despite the rigorous handicaps of transportation and weather, the project has moved forward on schedule. It is expected that cofferdamming and dewatering of the powerhouse site will be completed by Christmas so that construction of the dam and power plant can be started early in 1955.


## Diversion Channel

In recent months, work crews have been engaged in the construction of timber-crib cofferdams above and below the main dam site. These structures extend out into the river from both banks. A section was left open in each of the cofferdams to pass the river until work


*(Continued on page 4)*

cofferdam at Manitou Falls  
open until completion of  
temporary diversion channel.




 **MANITOU FALLS** project sawmill where Hydro workers have salvaged a large portion of timber cleared from the area to be flooded.



 **DOWNSTREAM** view of Manitou Falls project showing temporary access bridge, and a section of the upper cofferdam. The English River has been diverted into a 200-foot long temporary diversion channel (middle right) to facilitate construction of the main dam and powerhouse.

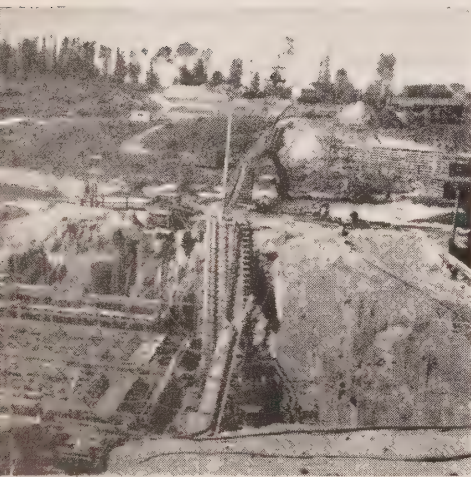


 **BAILEY BRIDGE** over the English River forms part of the 13-mile access road opened recently. The new road permits shipment of supplies and equipment by truck rather than boat.





MAIN DAM CONSTRUCTION AND CAMP AT MANITOU FALLS



WORKMEN build forms for piers of the bypass sluiceway section which will be incorporated as part of the main dam structure.

on the 200-foot long diversion channel, parallel with the main course of the river, was finished.

A rock "plug" at the upper end of the new diversion "cut" prevented water from entering the diversion channel until all excavation work and building of piers for the bypass sluiceway section of the main dam were completed.

#### Rock Plug

Early in November the rock "plug" was removed by dynamite charges, permitting diversion of the English River into its new, man-made channel. This

enabled construction forces to start work on completing the open sections of the upper and lower cofferdams, which will be followed by unwatering of the enclosed main river bed in preparation for actual work on the main dam and powerhouse which will be carried out in the "dry."

With an operating head of 55 feet, the new project will raise the level of the river for a distance of some 18 miles upstream, with the major portion of the flooding being confined to a five-mile area above Manitou Falls. This has necessitated the clearance of bush and trees from an 800-acre area lying adjacent to the river banks where the main flooding is to take place. A substantial amount of the salvaged timber has been converted and used in project construction, particularly for the cofferdams.

Initial work on the project was started in October, 1953, when a preliminary camp site was established at Manitou Chute about five miles from Manitou Falls. Since that time, approximately 65 acres of forest have been cleared to build a camp capable of housing, feeding and providing recreation for an anticipated peak labor force of 700 men. Camp facilities include a cafeteria, recreation hall, hospital, two-room school, and six dormitories.

During the cold winter months of 1953-1954, machinery, supplies, and equipment were transported to the project over a winter road of snow and ice

until spring thaws and knee-deep mud made such transportation impossible.

Road travel gave way to water transportation. A small "navy" of seven barges, a tugboat and three inboard and two outboard motorboats was used to carry material to the camp. Each week, for example, about 75,000 feet of lumber, 15 tons of foodstuffs, and 85 tons of other construction material from various distant supply points, were brought in by the barges.


#### Permanent Road

Last September, however, a permanent 13-mile access road—through timberland and treacherous muskeg—was opened to the once-isolated site. Its completion automatically meant that travelling time from Hydro's Ear Falls Generating Station, the nearest community, was cut to 20 minutes by road instead of nearly two hours by boat.

Recently, when Ontario Hydro News visited this most northerly of Hydro's new power developments undertaken as part of the Commission's vast expansion program during the last nine years, the men of Manitou were once more getting ready for the severe winter ahead. Undaunted by the prospect of temperatures which sometimes dip to 50 degrees below zero, they were preparing to continue construction on schedule so that power from Manitou Falls would be available to meet rising electrical demands in the Northwestern Region.





 **LARGE** crowd attended the official opening of the new laboratories and office building.

# OPEN NEW LABORATORIES

**C**ANADIAN Standards Association new laboratories building, located on Rexdale Boulevard in the Township of Etobicoke, was officially opened by Dean R. E. Jamieson, C.S.A., President, and Dean of Engineering at McGill University in Montreal.

The laboratories, which consist of a single-storey laboratory and office building of 50,000 square feet are of modern construction, with emphasis on well-lighted working conditions, by extensive use of glass partitions and the latest in lighting fixtures. The method of distributing power in a great variety of combinations of voltages and frequencies, to the various laboratories and test locations, is probably unique in Canada.

To provide for future expansion, the Association purchased 10 acres in all, and the new building is specifically designed for extending its scope, as well as for growth of existing testing programs. It is likely that the laboratories will be asked to provide a certification service on other products besides electrical and oil-burning equipment.

Among those who were present at the opening ceremonies were: Dean R. E. Jamieson, C.S.A. President; Dr. E. W. R. Steacie, President, National Research Council; Dr. Richard L. Hearn, General Manager and Chief Engineer, Ontario Hydro; Karl A. Pollock, President, Radio Television Manufacturers' Association; J. A. Calder, President, Canadian Manufacturers' Association; K. V. Farmer, President, Canadian Electrical Manufacturers'



Association: B. G. Ballard, Chairman, Administrative Board, C.S.A. Laboratories; R. F. Legget, Director, Division of Building Research, National Research Council; J. S. Cameron, Vice-President, Northern Electric Co. Ltd.; Dr. J. M. Thomson, Vice-President and General Manager, Ferranti Electric Ltd.; Dr. W. P. Dobson, Research Consultant, Ontario Hydro; Gerry Moes, Manager, C.S.A. Laboratories; Prof. D. M. Jemmett, Queen's University; R. H. Mather, Member of the Administrative Board, C.S.A. Laboratories; J. G. Morrow, Metallurgical Engineer, The Steel Co. of Canada Ltd.

Dean Jamieson paid special tribute to the representatives of Canadian industry, science and government who have contributed to the outstanding growth of the Association.

Dean Jamieson has announced the appointment of Fred A. Sweet, P.Eng., as General Manager, to succeed the late Colonel W. R. McCaffrey.

Mr. Sweet, who has been Chief Technical Officer of the C.S.A. for the past 14 years, is a graduate in civil engineering of the University of Toronto, and a member of the Association of Professional Engineers of Ontario.





# HYDRO DAY

Ceremonies at Blind River

Welcome Northern Community



NETWORK of Northern Ontario radio stations carried Chairman Saunders' Blind River inauguration address. Mayor Louis Berthelot, left, Paul Young, President, Pronto Uranium Mines, and Harold Simpson, new Manager, Algoma R.O.A. also participated in the ceremony.



AERIAL VIEW OF BLIND RIVER. (Ontario Department of Lands and Forests photo)



**B**LIND RIVER, a busy lumbering community 103 miles west of Sudbury, has joined the ever-growing Ontario Hydro family.

At community-wide celebrations November 16, Chairman Robert H. Saunders officially welcomed the many residents of the area who participated in the observance of "Hydro Day."

"We are extremely proud to include Blind River in the increasing number of Ontario municipalities being served by Hydro," Mr. Saunders stated.

By supplying electricity to meet the town's increasing power requirements, Hydro will have an opportunity to play its part in the promising future of this rapidly-developing section of the province, strategically situated in the heart of one of Canada's largest uranium fields, he said.

Mr. Saunders, in a special report from Blind River broadcast over a network of Northern Ontario radio stations, announced that Hydro had no intention of increasing standard power rates to mining companies in Northern Ontario in 1955.

"The rate that applies now, and will apply on all mining contracts coming up for renewal, is the rate that was instituted on November 1, 1952, and is now being paid by 38 mines represented by 28 companies in Northern Ontario," the Chairman stated.

Referring to recent discussions of Hydro mining rates, Mr. Saunders stressed that power is supplied at cost. "It is our duty to charge actual cost," he said. "We have no right to give preferential treatment or to provide a subsidy to any power customers or class of customer in Ontario. If we were to charge less than the proper price to the mining companies, then the differential must be paid by other customers."

#### Detailed Studies

The Hydro Chairman emphasized that the present standard mining rates are based upon detailed and exhaustive studies by the Commission's financial experts in conjunction with its auditors.

Mr. Saunders said that, until 1950, it had been Hydro's practice in Northern Ontario to sell power to mines at a fixed rate under agreements with terms of 10

years. The original rates set out in these agreements were based upon the prevailing level of cost and cost trends at the time of their negotiation.

"Thus, when it became necessary in 1950 to generate additional blocks of power from higher cost plants to meet the requirements of industry in Northern Ontario," he said, "it was not immediately feasible to increase rates to all customers until such time as existing contracts expired.

"Until 1949, the accumulated surpluses on Northern Ontario Properties operations were sufficient to meet any small deficits that appeared from year to year. However, with the construction of new generating plants, and major betterments at higher unit costs, and due to increasing costs of operation and maintenance, it became necessary, in 1951 and 1952, to institute a series of rate increases."

At the present time, mining companies, with the exception of a few whose contracts have not expired, are charged the 1952 rate. In all new agreements, this rate is subject to annual review.

Mr. Saunders explained that Blind River has become a member of the Northern Ontario Properties Hydro family, as distinct from the Southern Ontario System. Each system is, under provincial law, a separate trust and entity, and the financial operations of the Northern Ontario Properties are, therefore, separately maintained. Geographically, the Southern Ontario System is that part of the province lying roughly south of North Bay.

"Southern Ontario is connected with Northern Ontario only by means of a tie-line for the mutual power protection of both systems," the Chairman said. "Beyond this tie-line there is no connection between the two, and most assuredly there is no financial connection between the systems."

The tie-line permits the interchange of power between the two areas. For example, surplus power in Northern Ontario can be diverted to Southern Ontario when the need arises and vice versa.

"Any power purchased from the Sou

*(Continued on page 8)*



ONTARIO Hydro linemen check Blind River distribution system. New 17-mile transmission line was recently completed in the record time of one month to serve the town.





BLIND RIVER'S future Hydro customers watch a film depicting power development on the Niagara River during 'Hydro Day' observance.

thern Ontario System is charged to Northern Ontario Properties," Mr. Saunders stated. These charges, however, do not include the cost of frequency standardization, the Chairman emphasized.

#### Revenue Gains

During the years, 1950 to 1953, inclusive, such interchanges of power resulted in a net gain in revenue for Northern Ontario Properties amounting to \$556,342.

"Water conditions were so bad during 1953," the Hydro Chairman pointed out, "that if the north had not been connected to the south, it would have faced a power deficit. The only alternative to this interconnection would be the construction of new generating plants in Northeastern Ontario. This step would be very expensive and, therefore, costly to the power customers in Northern Ontario."

Mr. Saunders noted that because of increasing loads in Northern Ontario after the Second World War, it was necessary to build new power plants. Among these developments was the 63,000-horsepower George W. Rayner Generating Station on the Mississagi River. It is from this plant that Blind River is now receiving its power.

First delivery of Hydro power to Blind River was actually made November 4

following the purchase by the Commission of the local distribution system from the Electric Light and Power Service. This company will continue to operate its generating station and sell the Commission its total output. Power obtained from the Mississagi River station will augment this supply.

To serve the community's 2,500 population, Ontario Hydro erected a 17-mile transmission line from Iron Bridge to a new substation in Blind River in the record time of one month. The rapid supply was made possible by construction last year of a 26-mile transmission line to Iron Bridge from the George W. Rayner plant.

Blind River "Hydro Day" began in the afternoon with the showing of the film, "Niagara the Powerful," to school children of the community.

A reception was held in the evening at the staff house of McFadden Lumber Company, the largest white pine lumber mill in Canada, followed by dinner and a public meeting.

Mr. Saunders paid warm tribute to Blind River Mayor Louis Berthelot, his council and members of the municipality's planning board, who in co-operation with Hon. Lester B. Pearson, M.P., J. A. Fullerton, M.P.P., and Edward Deagle, President of Electric Light and Power

Service, first approached Hydro about taking over the supply of power and completed the negotiations. The Chairman was thanked by Paul Young, Manager of Pronto Uranium Mines.

#### Local Power Shortage

Discussions between Hydro and local officials were started earlier this year when it became evident that the town faced a power shortage because the local power company's plant, with a capacity of 750 horsepower, was unable to meet the community's growing power demands. The situation was further complicated by the loss of two dams on the Blind River by spring flood waters, reducing power output. To avert a power cut-off until the dams could be repaired, the McFadden Lumber Company tied its own generating facilities into the distribution system and supplied the town on a temporary basis.

Although Blind River is now entering a new era of expansion through uranium discoveries, it is still primarily a lumber town. At the time of its incorporation in 1906, electricity was supplied from a water power plant in the town, operated by George Pindell, and served four sawmills by day and the residents at night.

In 1910 the Electric Light and Power Service took over the supply of electricity to the town and relocated the plant at White Falls, 10 miles north on the Blind River. This station to which a diesel unit was later added, also served Iron Bridge, Dean Lake and a number of farms in the area at one time.

#### Algoma R.O.A.

For the present, the local system will be administered by Hydro through its Algoma Rural Operating Area. H. R. Graham, Manager of Hydro's Northeastern Region, who introduced Mr. Saunders at the public meeting, announced that Harold G. Simpson, formerly Assistant Area Manager of Sudbury R.O.A., has been appointed Area Manager of Algoma R.O.A. which will set up its headquarters at Blind River.

Algoma R.O.A., covering 2,250 square miles between Sudbury and Sault Ste. Marie, was established by Hydro in 1951 because of the large industrial and population growth within the area. Evidence of this expansion is revealed in the fact that the number of customers served has

(Continued on page 29)

# FOTO-NEWS



**WINS AWARD**—Selected as the winner of the "Name This Fixture" contest sponsored by J. A. Wilson Lighting and Display Limited, W. H. Girard, member of the staff of Ontario Hydro's Lighting Section, Consumer Service Division, left, is shown as he received a cheque for \$500 (as an alternative to an all-expense trip to Bermuda) from President J. A. Wilson. Mr. Girard's prize winning name "Lumilux" is to be adopted for the new fixture, which is regarded as the world's first all-moulded plastic luminaire.



**HONOR INSPECTOR**—Many municipal Hydro commissions were represented at the recent semi-annual meeting of the Western Ontario Electric Meter Association in London. Highlight was the presentation by R. S. Reynolds, Manager of Chatham P.U.C., of a skillsaw and silver tray to J. C. Smith, London District Inspector, Gas and Electricity Division, Department of Trade and Commerce. Mr. Smith, one of the founders of the W.O.E.M.A., is retiring in the near future. Seated are: John Dawson, Manager, Dunnville P.U.C., and Chairman, Ontario Metermen's Council, and Mr. Smith. Standing left to right: Gordon Steiss, Kitchener, Librarian, Metermen's Council; Mel Alderson, London, W.O.E.M.A. Secretary-Treasurer, and Allan Lawson, Sarnia Hydro-Electric Commission, W.O.E.M.A. President. (Photo by London Free Press.)



# BACK TO THE LAND



## Holland Marsh Pumping Committee and Ontario Hydro Complete Project Ahead of Schedule

**H**ARD hit by flood waters following Hurricane Hazel on October 15, farmers of Holland Marsh, north of Toronto, are now back on the land preparing for the 1955 crop. The immense job of pumping out the inundated marshland, involving approximately eight billion gallons of water, was completed in the record time of 24 days — 11 days earlier than originally estimated.

On October 20, when the first emergency pumps were placed in operation, it was anticipated that the flood water from the 5,000-acre eastern section of the Marsh would be removed within 35 days. Not only has this been accomplished in 11 days less than the anticipated time, but it has also been possible to reclaim the 2,000-acre section lying west of Highway 400.

Commenting on the successful completion of the project, Hydro Chairman Robert H. Saunders said the success of the emergency pumping operation was due in large measure to the very dry weather following the flood, combined

with the efficiency of Ontario Hydro staffs and the high degree of co-operation and assistance rendered by the people of Holland Marsh, members of the Bradford Public Utilities Commission, and the various organizations which loaned equipment and pumps. Bradford P.U.C. was closely associated with Ontario Hydro and the Holland Marsh Pumping Committee in practically every phase of the work, such as supplying poles for closing the break in the dyke, pumping facilities, emergency housing, and other aspects of the critical flood situation.

### Bradford Co-operates

When the problem was referred to Ontario Hydro on October 18, the Construction Division was instructed to deliver and install the pumps and the Commission's Georgian Bay Regional Office was made responsible for arranging with Bradford P.U.C. as well as Alliston and Barrie Rural Operating Areas to supply a total connected load of more than 2,500 horsepower at the pumping site. The Bradford Commis-

sion, consisting of Chairman Art Spence and Commissioners Frank Maurino and Ken Wood, directed their Superintendent, Al Eadie, to co-operate fully and place their resources at the disposal of Ontario Hydro to get the pumps in operation quickly.

In order to expedite the removal of water from the flooded area, the utility agreed to load its existing feeder to capacity during the first stage of pumping operations, and subsequently to co-ordinate with rural and construction staffs in installing two additional circuits on a new pole line. This line, approximately 8/10 of a mile in length, will be purchased by the Bradford P.U.C. for joint use by Bradford and Alliston rural customers in the future. Moreover, the utility staff gave valuable continuous co-operation to various citizens' committees and the Construction Division. Poles for pile-driving were delivered at the north dyke and other items of material were supplied for line construction and pump installations. By virtue of their

knowledge of local conditions the Bradford P.U.C. staff was able, also, to arrange for telephone facilities at the pumping site, the assistance of local tradesmen, and other details.

The establishment of a 60-unit trailer camp and erection of 30 prefabricated housing units (supplied by Ontario Hydro), in the town park, presented yet another problem to the utility. A sub-distribution system was installed to serve an estimated load of 100 kilowatts. A water main was laid to supply water for the families occupying this emergency housing project during the winter season. In view of the inconvenience due to interruptions necessitated by new line construction and unforeseen circumstances during this difficult period, Bradford customers "are deserving of commendation for their patience and understanding under these trying conditions."

### Foresight Lauded

Paying tribute to the foresight of the Holland Marsh Pumping Committee under its Chairman, Peter Verkaik, in originating the plan for the pumping scheme, Mr. Saunders referred to the generous assistance of Steep Rock Iron Mines (which supplied three of the largest pumps); Howard Smith Paper Company, Cornwall; the City of Ottawa, Construction Equipment Ltd., Toronto, and the C.G.E. Barrie Works.

In order to reclaim this rich farming area, 19 electric and gasoline-driven pumps were placed in service on the dykes at the northeast end of the Marsh, to augment the two-unit permanent pumping station. With a total combined

pumping capacity of 235,000 gallons of water per minute, the pumps operated day and night for more than three weeks.

Aided by unusually dry weather for this time of the year, the pumps lowered the water at a record rate. Because of the rapid progress in the eastern section it was decided to open the culvert under Highway 400 and pump out the flood waters from the west end of the Marsh. Here 2,000 acres of land were under 12 feet of water.

"We are extremely proud to have been called upon to help in the emergency at

Holland Marsh," Mr. Saunders stated. "We sincerely hope that the efforts of the past month will enable these folk, who suffered so terribly from the storm, to rehabilitate their land and homes so that the Marsh will once again become one of Canada's greatest vegetable-producing areas."

Letters from the President of the Toronto Branch of The Canadian Red Cross Society, and Chief Constable Andrew Hamilton, Etobicoke Township, expressing appreciation of Ontario Hydro's assistance during the flood emergency appear on Page 29 in this issue.—EDITOR'S NOTE.



MEMBERS and staff of Bradford P.U.C. who played an important part in the Holland Marsh flood relief operations are shown above. Left to right: Roy Storey, Doug James, Harold Gwyn, Superintendent Al. Eadie, Secretary-Treasurer Marie Moriarity, Commissioner Kenneth Wood, Jack Carty, Ontario Hydro, Barrie, and Chairman Arthur Spence. Commissioner Frank Maurino, is shown in the lower photo on the left.

AT the height of the flood (left), Springdale Christian Reformed Church and Holland Marsh houses graphically illustrated hurricane damage. Photo, right, shows church and homes on November 18.





# NEW TREND

**Panel Discussion on Uniformity of Municipal Operations Features District 6 O.M.E.A. Meeting**

**R**EPRESENTING a new trend, the panel discussion and its accompanying "free-for-all" exchange of ideas and opinions has become a rewarding and interesting feature of recent meetings of O.M.E.A. district associations. This was certainly the feeling among delegates at the annual convention of District No. 6, O.M.E.A., at Hespeler.

Subject of the round-table at Hespeler was "Uniformity in Municipal Operations," and the key points, which resulted in stimulating comments from both the panelists and members of the audience alike, revolved around the collection of deposits and budgeting by local commissions. Panelists were W. Ross Strike, Second Vice-Chairman, Ontario Hydro; Colonel A. A. Kennedy, President, O.M.E.A.; N. A. Grandfield, General Manager, Galt P.U.C.; C. K. Merner, Chairman, New Hamburg P.U.C.; S. E. Preston, Manager, Kitchener, P.U.C., and A. R. Moore, Chairman, Stratford, P.U.C.

While delegates appeared to generally endorse the merit of collecting deposits from their domestic customers, there was a divergence of opinion on the question of refunding deposits and the payment of interest. Mr. Preston reported that his commission did not refund deposits

until customers discontinued service.

"To refund the deposit on any other basis would defeat the purpose of the deposit, which is to protect us against non-payment of the last bill," he stated.

## **Good Public Relations**

Referring to his commission's handling of domestic customer deposits, Mr. Moore agreed with the policy of refunding the deposit at the end of a two-year period if the customer had demonstrated his reliability during that time. Col. Kennedy expressed his concurrence, stating that payment of interest fostered better public relations, the interest being computed when a customer terminated his contract. In this way, he said, accounting is kept to a minimum.

It was generally felt, however, that the subject of deposits and their refund was a very flexible one, and was dependent, frequently, on whether or not a municipality had a large transient population or a stable one, and on a commission's past experience with respect to liabilities incurred through non-payment of bills.

Mr. Strike advised that it would be good policy for local commissions to approach the lawyers in their municipalities for co-operation in ascertaining

REGISTRAR Barbara Gillow, of Hespeler, seated, accepts fees from, left to right, J. A. Woodward and Jack Robinson, Guelph, and A. R. Moore, Stratford.



that Hydro accounts were paid up on transfer of property ownership.

It was largely agreed by the panel that all municipal commissions should operate according to a budget, both for operating and capital expenditures. Col. Kennedy felt that despite the difficulty of estimating expenditures for the year's operations ahead, owing to the continuing expansion of most Hydro systems, "a budget is the only means of knowing where one is going."

During the day, delegates heard Mr. Strike speak on "Municipal Contracts." Other guest speakers were John Dibblee, Manager, Personnel Branch, Ontario Hydro, who discussed "Labor Relations"; Don Cameron, Secretary-Treasurer, Electrical Employers' Association of Ontario, who spoke on "Accident Prevention," and Bert Merson, Secretary-Treasurer, Municipal Hydro-Electric Pension and Insurance Committee, who dealt with the pension and insurance plan.

Calling for the "modernizing of the existing municipal contract," Mr. Strike said "the contract now in use poses certain problems of interpretation owing to the changed conditions since the contract was written some 41 years ago."

He pointed out that the clauses in the

DISTRICT 6 executive, left to right: W. J. Bishop, Guelph (back to camera); Mayor J. E. Huckins, Goderich; H. O. Hawke, Galt; George Glover, St. Marys; J. H. Francis, Tavistock; C. K. Merner, New Hamburg; A. J. Girdwood, Guelph, and A. E. McIntyre, Stratford, discussing the program for the meeting.



present contract providing for the termination of the contract and also the withdrawal of the municipality from the Trust should receive special study, and suggested that it might be beneficial to have a special committee comprising representatives of the O.M.E.A., A.M.E.U., and Ontario Hydro to study a revision of the contract.

#### Moral Responsibility

Mr. Dibblee, emphasizing the moral responsibility of management and labor in their relations with each other, said "we must all throw overboard many of our long-cherished notions about this perplexing subject."

He explained that labor still remembers its hard-fought battle to get where it is today, and that many labor leaders seek to keep alive that memory, cautioning their membership that "they must continue fighting or be knocked down."

"Both sides are wrong; both sides are blind," said Mr. Dibblee.

Seeking a cure to this crippling situation, he said: "Management needs men of character who will establish a policy that is just and right and who will stick to it regardless of the interim trials and tribulations that will come as a consequence.

"It is up to management to start first

and develop a new level of moral leadership and let labor see clearly what our intentions are. When we do the right thing because it is right, and not the expedient thing to do, then the other side will catch on and follow suit."

#### Safety Legislation

Speaking on behalf of the activities of the Electrical Employers' Association, Mr. Cameron stated that in a few instances on the continent, legislation has been introduced, binding utility employers to carry out a fixed procedure to ensure the safety of their workers.

In areas where such legislation is in force, the employer has no recourse but to follow it, regardless of whether or not the legislated procedure is the best and most economical for his particular needs.

"I hope no such legislation will reach this province," said Mr. Cameron, "and it won't if Hydro municipalities will take a genuine interest in the activities of this association which is developing a safety program that can be considered among the best in Canada."

Urging that utility commissioners interest themselves in the Hydro pension and insurance plan, Mr. Merson said: "We want the commissioners to feel that when we send pension and insurance plan literature out to your employees,

we are not trying to undermine your activities; or to interfere with your prerogatives of management."

During the business session, delegates agreed that District No. 6 would adopt the O.M.E.A. uniform constitution. Col. Kennedy said "all Districts are now pretty well in line with respect to following it." Commenting on the operations of the different O.M.E.A. Districts, Col. Kennedy said "all Districts are improving," but pointed out that "they are still not good enough, though I admit no one can be perfect."

Considerable discussion took place when the demand for direct O.M.E.A. representation on the Ontario Hydro Commission was rekindled in a resolution from the floor, calling for the matter to be investigated. A rider was appended that all district O.M.E.A. groups should be contacted to see whether or not they would agree to the idea in principle.

#### Election of Officers

In the election of officers, the following slate was nominated and approved by delegates: President, T. J. Moffatt. Lis towel; Past President, A. J. Girdwood, Guelph; 1st Vice-President, George Glover, St. Marys; Second Vice-President,

*(Continued on page 35)*



# COMPLETE PICTURE

Western Ontario A.M.E.U. Committee  
Sponsors 22nd Annual Conference

**P**ROVIDING a complete picture of municipal utility accounting procedures, the recent 22nd annual conference, sponsored by the Western Ontario Division A.M.E.U. Accounting and Office Administration Committee, was voted an outstanding success by the 175 or more delegates.

Held at Niagara Falls this year, the two-day meeting featured comprehensive addresses on a variety of subjects, ranging from the preparation of a yearly financial analysis to the planning of a system budget.

Dealing with the question of annual cost analysis reports, R. A. Pett, C.P.A., Municipal Accountant, Ontario Hydro's Western Region, London, illustrated his lecture with slides showing the various forms and successive steps involved in the preparation of a representative yearly cost analysis.

Showing a typical balance sheet and operating statement, prepared each year

from a utility's books of account, the speaker said that, within the limitations of generally-accepted accounting principles, the utility accountant is limited further by the need to conform to a system of uniform account classifications. One of the reasons for this limitation is the need to produce cost information in the form required to satisfy the analysis process.

## Account Classification

As an example of the need for proper account classification for the analysis, Mr. Pett said that line transformer expenses are frequently charged as distribution system expenses. In such cases, and where street lighting facilities are of the series types, street lighting, in the yearly analysis, will be charged with a portion of the operating and maintenance expenses involved in servicing and maintaining such equipment as line transformers, which actually do not affect the operation of street lights.

This will occur when apparent distribution system operating and maintenance expenses are spread over all the customer classes served by the utility.

"In using this example, you should not conclude that distinctions between line transformer operating and maintenance expenses are important only in the above circumstances," the speaker warned.

Mr. Pett outlined the basic problem as: (1) Determining the total investment in plant employed in giving service to each class (i.e., domestic and commercial lighting customers or lighting customers; power customers, and street lighting); (2) Setting forth the fixed and variable costs involved in operating, maintaining and energizing the plant serving each class; (3) Comparing the costs apportioned to each class with the revenue received from each class.

The speaker then presented a series of comprehensive slides showing how a yearly analysis could be prepared. In working out this basic problem, he said two

general principles of cost apportionment are employed: costs—capital or operating—will be apportioned to each customer class, either to the extent caused by each class, or on the basis of benefit received by each customer class.

## Utility Financial Operation


D. T. Flannery, Ontario Hydro's Consumer Service Engineer, Niagara Region, discussed the operation of an electric utility from a financial point of view. For the successful operation of any utility, he maintained, the closest cooperation between the accounting and engineering staffs must prevail. Expenditures—which might be considered to give ideal operating conditions, would be automatically ruled out if they were beyond the ability of the utility to finance them.

"Two of the principal functions of a local commission," said Mr. Flannery, "are the directing of policies in connection with the operation of the utility, and the approval of capital expenditures necessary for growth and improved service to customers."

In discharging these responsibilities, the local commission requires a budget setting out in detail the capital and operating expenditures for the current year, with a tentative budget for the following year. The preparation of a budget entails a study of the balance sheets and operating statements for the previous two or three years. This will indicate the general trend, which, together with a knowledge of local conditions, will enable the presentation of a reasonably accurate budget. Consideration must be given also to expenditures which are not of a recurring nature, such as those concerning the erection of an office building.

In this connection, Mr. Flannery showed a typical balance sheet, operating statement, and a budget for a municipality undertaking the construction of new headquarters accommodation. With these statements, the speaker demonstrated the method of preparing a predicated



 COMELY Hydro guide, Nancy Hallam, left, discusses large statue of the "Father of Ontario Hydro" with Howard Cook, Brantford Township, and S. J. Pollock, Toronto Township, as A.M.E.U. delegates toured the Sir Adam Beck-Niagara Generating Station No. 2.

operating statement for two ensuing years. This statement indicated that the existing rate schedule would not produce sufficient revenue to meet operating expenses, with a consequent operating deficit. Mr. Flannery then suggested a method of determining a revised rate schedule which would ensure sufficient revenue to meet all operating expenses and provide for a surplus of approximately 10 percent of the annual revenue.

#### Budget Planning

Another featured speaker was Ross Logan, C.A., Chief Accountant, Toronto Hydro-Electric System, who completed the story with his talk on "Planning a Budget."

Budgetary control, Mr. Logan said, is the formulation and use by a system of definite plans for the *near* future—approximately one year—in order that all phases of business may be controlled, co-ordinated and directed towards achievement of a pre-determined plan. It is the continuous attempt to lay out revenue, capital and effort to realize the maximum return therefrom.

The principles of budgeting, Mr. Logan said, fall into three divisions: the result desired; the progress being made towards that result, and the changes, if any, that should be made in the original plan leading towards that result. By means of a budget, management is in-

formed of the probable operational profit of a utility under estimated conditions of demand, customers, rates, material costs, wages and efficiencies. This estimate is compared, generally each month, with actual figures.

#### New Construction

When new construction is to be financed by the issue of debentures, a construction budget serves a useful purpose as a basis for presenting the financial requirements of the utility, and a statement showing definitely what the utility plans to do with moneys received from the sale of its securities.

"This construction budget will be of value when the utility is making application to Ontario Hydro for authority to undertake capital construction."

D. N. Durward, Galt, was in the chair for both business sessions, and an interesting and stimulating "question-and-answer" period followed Mr. Logan's well-received address.

Guest speaker at the conference banquet was Rev. Robert Rolls, with J. F. Cook of Windsor in the chair. Mayor E. M. Hawkins welcomed the delegates on behalf of the citizens of Niagara Falls and reminded his listeners that the city was celebrating its 50th anniversary. Alan Howard, Vice-President of the A.M.E.U., extended greetings from the parent association.—*by Horace Brown.*



R. A. PETT  
London



ROSS LOGAN  
Toronto

REGISTRATION was handled by three members of Hydro's Niagara Region staff, seated left to right, Gladys Rossall, Janette Graham, and E. M. Frantz, shown accepting fees from, left to right, R. A. Holliday, London; D. N. Durward, Galt; Howard Cook, Sam Murchie, both of Brantford Township, with Frank Jannaway and Ray Pfaff, of St. Catharines.



D. T. FLANNERY  
Niagara Falls



OFFICE and maintenance facilities are located in the renovated headquarters building of Midland Public Utilities Commission. ➡



# Liability BECOMES AN ASSET

**FORMER STEAM GENERATING STATION CONVERTED AS A  
MODERN HEADQUARTERS BUILDING FOR MIDLAND P.U.C.**

**C**LIMAXING some 43 years of progress and development, Midland Public Utilities Commission officially opened its attractive new headquarters recently.

Officiating at the event, Ontario Hydro Chairman Robert H. Saunders said:

"The opening of this building is a tribute to the local utility whose well-planned policies and interest in providing efficient service, at all times, have made an important contribution over the years to the prosperity of the municipality."

The ribbon-cutting ceremony took place in the spacious premises in the presence of some 100 leading municipal officials and representatives of the press and radio. Located at the Fourth Street substation, the building has been owned by the local commission for many years. Originally

it housed a steam engine for the generation of power, but latterly has been used as a repair shop and storehouse.

Midland Chairman Charles Stevenson, who presided at the opening, said the building had been completely renovated at an overall cost of \$13,000.

"We have not only been able to consolidate our office and maintenance operations at one site," Mr. Stevenson said, "but we also have converted a liability into an asset. This will pay off in increased efficiency of service."

Rapidly-expanding operations of the Midland utility, and the consequent need for enlarged general office accommodation, made it necessary for the commission to move from its former office in the Municipal Building to its present site

which is immediately adjacent to the Fourth Street substation and the water pumping station. Decorated throughout with mahogany plywood, the building has a general office, three separate offices, and a large board room. Behind is a storeroom which can be made available in the future if additional office space should be required. A second garage was recently constructed on the site, while a parking lot has been cleared for the convenience of customers.

## **Remarkable Growth**

The relocation of the Midland Public Utilities Commission headquarters strongly reflects the utility's remarkable growth since the municipality first entered into a contract with Ontario Hydro for the

supply of electric power in 1911. It has served a town, rich in Ontario history, which is strategically situated on Midland Bay near the southern end of Georgian Bay. Ranking as an agricultural centre, Midland can boast also of its diversified industrial economy. An important ship building centre on the Great Lakes, with an excellent harbor and four grain elevators, it is also the gateway to one of Canada's finest resort and recreational areas. Rail, highway and waterway transportation are at its doorstep.

In his address which was also broadcast by radio, Mr. Saunders said that Midland is a typical example of the municipal expansion evident throughout Ontario today.

"I am confident this progress, in no small measure, has been paced by Ontario Hydro with an adequate supply of electricity at the right time, at the right place, and at the right cost."

Discussing the development of the local system, Mr. Saunders said that the average load has increased from 4,638 horsepower in 1945 to 7,346 horsepower in 1953—or about 58 percent. In 1945, the Midland Commission was serving a total of 1,743 domestic customers, with an average monthly consumption of 157 kilowatthours. By the end of 1953, a total of 2,076 domestic customers had more than doubled their average monthly consumption to 338 kilowatthours.

"Far-sighted civic enterprise and the alertness of the local utility in providing electrical service," the Commission Chairman continued, "have brought many

manufacturing organizations to Midland. Between 1945 and 1953 the number of power customers increased from 53 to 62, while their average monthly consumption increased from 12,551 to 15,423 kilowatt hours. At the same time, the average monthly use of electricity by commercial customers has risen from 520 to 841 kilowatthours."

Also noteworthy is the fact that there has been "no appreciable change" in the average cost per kilowatthour to any class of Midland customer, during the same period, despite the continuing increase in the cost of other essential commodities.

#### Lower Than 1945 Rate

"The present kilowatthour cost to the domestic customer has, in fact, actually decreased since 1945," he said. "I do not know of any other product sold in Midland which is cheaper now than it was in 1945—except electricity!"

Turning to the question of the generation of electricity from atomic energy, Chairman Saunders stated that Hydro "need not consider going ahead with an atomic plant until 1958 or 1959, unless changes (which cannot be foreseen at present) occur."

Power from the Sir Adam Beck-Niagara Generating Station No. 2 will take care of demands until the fall of 1958 when power from the St. Lawrence Project will be available, he said.

"It is, therefore, obvious that we need not consider entering into the field of atomic energy until after the St. Law

rence power is virtually exhausted," Mr. Saunders told his audience and radio listeners.

#### New Plans

His statement was made shortly after returning from atomic studies in the United Kingdom where, he said, the first atomic plant in England—designated as Mark I—will be producing power by the end of 1956. However, British scientists and engineers are now working on the development of new plans and designs which will be ready in about two years.

"Already it is believed that a different type of plant is more acceptable for general peacetime use—a plant that will be capable of producing electrical power from the atom at a price which will compete with steam-generated power using coal as a fuel," Mr. Saunders said. "The British experts will, it is believed, have the necessary know-how in two years and will be capable of building a plant within three years from that date.

"We are in an extremely fortunate position in view of the fact that necessity does not dictate that we proceed immediately with construction of an atomic plant. We are able to take advantage of the studies that are being made, and will be made during the next four or five years. We have also been able to arrange for three or four of our engineers to be accepted on the research staff in England so we can take part in the studies now being made."

The Commission Chairman said that the citizens of Midland owe "a great deal" to those who have served and are serving on the local public utilities commission. He paid tribute to Chairman Charles Stevenson; Commissioners Mayor Charles Parker, O. H. Smith, Joseph H. Clute and David Hurrie, and Secretary-Treasurer Stewart Holt.

Commissioner Hurrie, honored earlier this year by the O.M.E.A. for 25 years' service as a municipal Hydro commissioner, extended the vote of thanks to Mr. Saunders.

"As long as we have men like Robert H. Saunders and his staff, we know Hydro will never let us down," Mr. Hurrie said.—by A. A. Bolté.



**MIDLAND** Chairman Charles Stevenson, left, smilingly lends a hand to Hydro Chairman Robert H. Saunders in the ribbon-cutting ceremony. In the second row are, left to right, Mayor Charles Parker, Rev. R. S. Hiltz, and Commissioner O. H. Smith, all of Midland.





PERHAPS no custom better expresses the spiritual significance of Christmas than the singing of the traditional carols.

One encyclopaedia reveals the rather startling fact that the word carol originally meant a dance, or a group of songs intermingled with dancing. Later the word was used to describe festive songs, especially those sung at Christmas.



In England, the singing of carols was prevalent as early as the 15th century. Many of these ancient carols, such as the "Cherry Tree Carol," the "Carol of St. Stephen," and others, preserve unusual legends of early Britain.

Historians record that sacred carols were sung in the open air, while jovial carols were favorites with shepherds and plowmen of rural England at Christmas feasts and entertainments. The "Christmas Caroling Song," which is believed to have originated even before the 15th century, had its beginning in the ceremony of carrying the wassail bowl—a hot drink of mixed wines, fruits and spices. The wassail bowl was carried by groups of singers during the Yuletide season to the houses of the gentry in expectation of a gift or gratuity. Originally the song contained the words: "Here we come a-wassailing" and "Love and joy come to you and to your wassail too." When the custom of carrying the bowl died out (not until well into the 19th century in many parts of rural England) the word "a-wassailing" was dropped and the word "a-caroling" was substituted.

Fortunately, many of the old English carols, such as the "Boar's Head Carol" which is still sung at Queen's College, Oxford, on Christmas Day, have not been buried with many of the customs they are reputed to have accompanied. Collections of carols have been printed at frequent intervals, the first selection being taken from the press of Wynkyn de Worde in 1521.



# THE CAROLS OF CHRISTMAS

A copy of *Piae Cantiones*, a Swedish collection published in 1582, came into the hands of Rev. J. M. Neale in 1852. Neale, whose translations and compositions are still sung by Canadian and British church congregations, translated a number of these carols and provided others with new words. "Good King Wenceslas," originally a spring carol, is the most famous example of Neale's translation ability.

The study of the carol tradition would fill many pages, for several countries have contributed to the great list of Christmas carols we know and sing today.

In Germany, the popular carol developed in parallel with the Christmas chorale, such as may be found in Bach's Christmas Oratorio. One of our best-loved modern carols, "Silent Night, Holy Night," had its beginning in Germany. The unusual circumstances surrounding its origin are worthy of repetition. In the year 1818, just two days before Christmas, the organ of the little Church of St. Nicholas in the small Austrian Tyrolean village of Oberndorf, broke down. The organist, Franz Gruber, found that mice had eaten into the bellows and immediate repairs were impossible.

He took his problem to the young curate, Father Josef Mohr, who agreed to write some verses if Gruber would compose music simple enough for unrehearsed guitar accompaniment.



The young priest received his inspiration for the carol as he was walking home in the frosty calm of the same evening after administering the last rites to a dying woman. Declaring to himself that "it must have been like this that silent, holy night at Bethlehem," he spent the rest of the night composing his immortal words.

The next day Gruber composed the music, finishing in time for the midnight Mass.

The church members were greatly aghast when they

heard only the muted strumming of a guitar and the thin, tired voices of the two composers instead of the rolling cadences of their church organ.



The quaint music of the new carol fell like a benediction on the startled parishioners as they listened to the beautiful words. Softly, they began to hum. At the end of the third stanza, they joined triumphantly with the priest and the organist to sing the repeat of the words "Christ in deiner Geburt" (Jesus, Lord at Thy birth).

This now-famous and lovely carol reached the outside world through a repair man who came from a nearby town, Zillaterel, to mend the bellows of the broken organ. Enchanted, he carried the words and tune away with him, giving it to some concert singers who sang it in other parts of Germany. Later it was used by roving choral groups, being published in 1840 at Leipzig for a family of Tyrolean singers.

Although less traditional, but equally lovely, the familiar "O Little Town of Bethlehem," is of American origin.

In 1868, Phillips Brooks, a young Episcopalian clergyman wrote the words for the children in his Sunday School of Holy Trinity Church in Philadelphia.

Enthralled by the first line, "O, little town of Bethlehem," Lewis Redner, Holy Trinity's church organist and Sunday School Superintendent, promised the children that he would compose music for the little hymn as his Christmas present to them.

His inspiration for the music came to him in a dream on Christmas Eve. Hurriedly lighting a candle, he wrote the now-famous music, completing the harmonies at the organ early the next morning.

Calling his song a "gift from Heaven," he played the tune for the children that Christmas morn. It has become a part of the musical observance of the Christmas season in many lands.





## ALONG the ST. LAWRENCE

Waters of the north arm of the St. Lawrence River rush through this small remaining opening during cofferdamming to span the river between Sheek and Barnhart islands. As tons of rock were added, this gap was gradually closed, forming a man-made barrier to the river. To the left of the gap can be seen timber cribbing associated with the preliminary stages in the construction of the cofferdam, one of two which will seal off the St. Lawrence River from the powerhouse site area. First power from the project is scheduled for 1958 with substantial completion of the entire development in 1959.





**IROQUOIS** Council made history on November 18 when it endorsed the site for the New Iroquois suggested by Ontario Hydro. Group, from left: Clerk Milburn Hyslop, Reeve Lloyd Davis, Councillors C. H. Cameron and C. V. Ellis, Hydro Chairman Robert H. Saunders, Councillors J. L. Fetterly and G. A. English.

## ST. LAWRENCE COUNCILS ENDORSE HYDRO

**C**ALLED at the request of Hydro Chairman Robert H. Saunders, who pointed out that council had expressed agreement with the Hydro site for the New Iroquois but that no formal resolution had been passed, a special meeting of the village council held on November 18 unanimously endorsed the site suggested by the Commission.

The resolution, moved by Iroquois Councillor C. V. Ellis and seconded by Councillor C. H. Cameron, read as follows:

"That this council endorse the site of the New Iroquois as suggested in the Ontario Hydro plans. This site is situated within the corporate limits of the village and is directly north of the present built-up section of the village."

Before the resolution was unanimously passed by Reeve Lloyd Davis and his council, Mr. Saunders said it was urgent that an immediate decision be made so that Hydro could prepare to supply water and other facilities for the new site of the Caldwell Linen Mills which, he advised, would be located in the vicinity of the site chosen by Hydro, and that construction of the new factory would be started next April.

After the resolution had been passed, Mr. Saunders expressed his appreciation of the council's co-operation and paid tribute to Reeve Davis for the part he had played in keeping the Caldwell mills in the district. He said he would advise the Department of Planning and Development.

*(Continued on page 29)*



## IROQUOIS COMPANY SIGNS AGREEMENT

**O**NTARIO Hydro's plans for relocating the Village of Iroquois, which will disappear as a result of flooding for the St. Lawrence power project, took a significant step forward on November 26 with the signing of vital agreements between Hydro and the Caldwell Linen Mills Limited. The agreements cover the purchase by Hydro of the existing Iroquois plant and dwellings of the Caldwell organization. The Company will build a new and larger plant approximately one mile north of the present factory and within the general area suggested by Ontario Hydro. Using a symbolic gold pen at the signing ceremony, Hydro Chairman Robert H. Saunders and Company President, Herbert H. Caldwell, acclaimed the far-reaching importance of the agreement to the residents of the Iroquois Matilda Township area. Shown above (seated) are, left—Mr. Caldwell, and right—Mr. Saunders. Standing, left to right, are: James Anderson, Vice-President and General Manager, Caldwell Linens; L. R. McDonald, Hydro's Deputy General Counsel; J. S. D. Tory, legal counsel for the company; C. L. Carrick, Hydro's General Counsel, and Hon. George H. Challies, Hydro's First Vice-Chairman.



# ONTARIO HYDRO

# Scholarships 1954

**P**ERPETUATING a custom inaugurated in 1952, Ontario Hydro has announced the names of the 1954 winners of nine Commission scholarships awarded annually at two Ontario universities and three other educational institutions.

The scholarships, with a total value of \$2,300, are presented for the purpose of encouraging and assisting promising students in the engineering and technical fields, and are a tribute to the accomplishments of graduates in this profession.

Based on the final standings for the first, second and third year's work of students taking any engineering course related to the Commission's operations, three scholarships of \$300 each are awarded at both Queen's University, Kingston, and the University of Toronto.

This year's winners at Queen's University were:

First year—E. J. Woods, Box 263,

Haileybury, Ontario (Engineering Physics).

Second year—E. R. R. Funke, Morrisburg, Ontario (Mechanical Engineering).

Third year—K. G. Fillmore, 1 Victoria Street, Truro, Nova Scotia (Engineering Physics).

At the University of Toronto, the Hydro Scholarships have been awarded to:

First year—D. R. Moorcroft, Milliken, Ontario (Engineering Physics).

Second year—A. J. Atrubin, 663 Dunbar Road, Kitchener, Ontario (Engineering Physics).

Third year—J. N. Rossall, 2190 Barker Street, Niagara Falls, Ontario (Chemical Engineering).

The \$100 scholarship presented to the most worthy cadet at the Royal Military College of Canada, Kingston, entering

his fourth year of the electrical engineering course has been awarded to:

Cadet Paul Flanagan, 5663 - 7th Avenue, Rosemount, Montreal, P.Q.

At the Ryerson Institute of Technology, Toronto, where Ontario Hydro presents a \$100 scholarship in the second year of a three-year course in the Institute's School of Mechanical and Industrial Technology, this year's winner was:

Charles A. Root, 44 Bridge Street, Campbellford, Ontario.

For the second year in succession, a \$300 scholarship has been presented at Port Arthur's Lakehead Technical School in support of the training being given in the school's applied science course. The scholarship, awarded on the basis of academic standing and need, went to:

Garfield A. Nuttall, 240 Van Horne Street, Port Arthur, Ontario.

E. J. WOODS



E. R. R. FUNKE



K. G. FILLMORE



## EDWARD JAMES WOODS

Born at Timmins on November 9, 1936, E. James Woods, of Haileybury, son of the late Mr. and Mrs. J. M. Woods, is the 1954 winner of the first year Commission scholarship at Queen's University. Educated at Haileybury Public and High Schools, Mr. Woods has two other awards to his credit—a Queen's Provincial (Ontario) Scholarship, and an I.O.D.E. Provincial (Ontario) Scholarship. Equally proficient in sports, he played with the Haileybury Hawks, Central N.O.S.S.A. Junior Basketball Champions in 1952. In the previous year he was acclaimed Junior Champion of the Haileybury Golf Club, garnering the same title from the Haileybury Ski Club during the 1951-52 season.

On his own initiative he tried Queen's examinations for both first and second years, taking excellent marks on the second year mathematics paper.

## EDGAR R. R. FUNKE

A new Canadian, Edgar R. R. Funke, Morrisburg, has been declared winner of the second year scholarship at Queen's this year. Emigrating to Canada from Germany in 1948 under a government contract as a toolmaker-machinist, Mr. Funke became a Canadian citizen only this year. Born at Dusseldorf, Germany, on November 27, 1926, where he obtained his primary education and a portion of his secondary education, he has settled with his parents, Mr. and Mrs.

Rudolf Funke on High Street in Morrisburg where he was granted his Ontario senior matriculation as a private student in 1952, winning the Watson Scholarship. At Queen's he has won the Science '41 and the Association of Professional Engineers of Ontario Scholarships. A member of the Morrisburg Canadian Club, he lists his hobbies and special interests as "bridge, chess, classical music and work."

## KEITH GEDDES FILLMORE

Winner of Ontario Hydro's third year scholarship at Queen's this year is a "maritimer"—Keith G. Fillmore, son of Mr. and Mrs. C. L. Fillmore, Truro, Nova Scotia. Born in that town on December 3, 1933, Mr. Fillmore received his primary and secondary education at Truro public and high schools.

In his final year at Truro Senior High School, this capable student won the Governor General's Medal and entered Queen's in 1951 on a Nova Scotia Provincial Scholarship. Since then he has maintained his scholarship standing, having won the Science '39 Alexander McPhail Scholarships and the William Coombs Baker Memorial Prize at Queen's. This year, in addition to the Ontario Hydro Scholarship, he was awarded the 1954 Engineering Institute of Canada Scholarship.

A musician, he plays with Queen's Brass Band and assists with the presentation of programs at the university radio station—C.F.R.C. Badminton claims his prior interest in sports.

## DONALD ROSS MOORCROFT

An enthusiastic astronomer and mathematician, Donald R. Moorcroft, of Milliken, has completed his first year in Engineering Physics at the University of Toronto by winning the Ontario Hydro Scholarship. Born in Toronto on June 2, 1935, he has manifested his scholastic proficiency on previous occasions, including a cup presented in recognition of highest entrance standing at Milliken Public School. Mr. Moorcroft also won the A. J. H. Eckardt Trophy for general proficiency on graduation from Markham District High School last year. Looking forward to a possible career in research work, he takes a keen interest in books on astronomy, being a member of the Royal Astronomical Society of Canada. Model railroading and mathematics are also spare time hobbies.

## ALLAN J. ATRUBIN

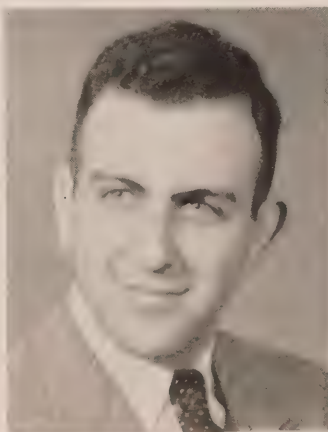
Named winner of the second year Hydro Scholarship, Allan J. Atrubin, 663 Dunbar Rd., Kitchener, has also been awarded the Charles Gordon Manning Prize at the University of Toronto. A son of Mr. and Mrs. H. M. Atrubin, of Kitchener, he is studying Engineering Physics at Varsity. Educated at Kitchener Waterloo Collegiate and J. F. Carmichael Public School in Kitchener where he was born on September 14, 1933, Mr. Atrubin entered the University of Toronto on an Engineering Alumni Admission Scholarship. He was the winner of a

*(Continued on page 24)*

D. R. MOORCROFT



A. J. ATRUBIN



J. N. ROSSALL





Carter Scholarship and the 1st year Wallberg Undergraduate Scholarship last year. He lists fishing and classical music among his special leisure interests.

## JOHN NEAL ROSSALL

Third year winner of the Hydro Scholarship at the University of Toronto is John N. Rossall, 2190 Barker St., Niagara Falls, Ontario, son of Mr. and Mrs. John S. Rossall. Studying Chemical Engineering at Varsity, Mr. Rossall also was awarded the Chemical Institute of Canada Prize as the best student in the third year of this course. Born on August 25, 1933, at Niagara Falls, he won the first Carter Scholarship in Welland County upon graduation from Stamford Collegiate. Since then he has added distinction to his name by winning Varsity's Ransom Scholarship in Chemical Engineering; the first Egerton S. Noble Scholarship; the Ardagh Prize in Chemical Engineering, and the Engineering Alumni Prize. Keenly interested in the activities of engineering societies, he is President and a Past Treasurer of the U. of T. Engineering Society, and a student member of the Engineering Institute of Canada, the Chemical Institute of Canada, and the Association of Professional Engineers of Ontario. During his secondary school days he won acclaim in public speaking contests at Stamford Collegiate and in the Niagara district. No stranger to Ontario Hydro, he gained his first engineering experience as a summer employee engaged in frequency standardization operations in the Niagara Region. Golf, swimming and basketball are his favorite sports.

## CADET PAUL FLANAGAN

Cadet Paul Flanagan, 5663 - 7th Avenue, Rosemount, Montreal, P.Q., selected as the 1954 winner of the Ontario Hydro Scholarship at the Royal Military College of Canada, Kingston, is now in his fourth year of the College's electrical engineering course. Born in the Quebec metropolis on November 21, 1932, Cadet Flanagan was educated at Brebeuf School, graduating from D'Arcy McGee High School in 1951.

Emulating the scholarly qualities of his father, George Flanagan, who has been teaching French at Montreal's Sir George William College for the past 31 years, Cadet Flanagan has raised his average steadily since entering R.M.C., passing first in electrical engineering at the end of the last term to win the Hydro award. During the 1952 and 1953 summer vacations he trained as a navigator with the R.C.A.F. Completing his training this year he was posted to No. 426 Squadron Air Transport Command. Swimming and skiing are his chief forms of recreation.

## CHARLES A. ROOT

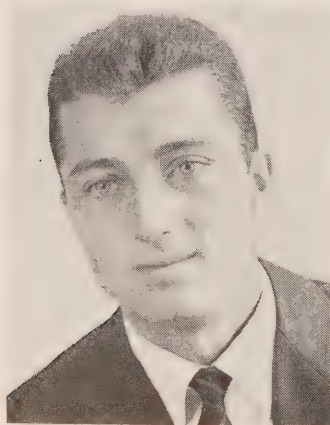
Specializing in Metallurgy at the Ryerson Institute of Technology, Toronto, Charles A. Root, 44 Bridge St., Campbellford, Ontario, was the winner of the Hydro Scholarship at that school this year. Born on February 25, 1933, at Oakville, Ontario, a son of Mr. and Mrs. Frank L. Root, this year's Ryerson winner received his primary education in Liverpool, England; Toronto; Moncton, N.B.; Napanee, Ontario and Ottawa, Ontario. He also attended secondary schools in

Ottawa, Toronto and Campbellford. Described as an "exceptionally good student," he obtained an overall average of 83.3 percent on his examinations at the end of 1953-54 term, securing seven firsts, two seconds and a third. Interested in extra-mural activities, he has served on the executive of Ryerson's Student Administrative Council during the past year. Fishing, swimming, basketball and football are his favorite sports. This year, he has been playing left-end with the Ryerson Rams, the schools' entry in the Intermediate Intercollegiate League.

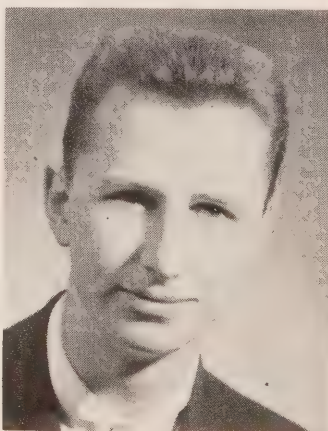
## GARFIELD ALONZO NUTTALL

Now attending the University of Toronto where he is studying Mechanical Engineering, Garfield A. Nuttall, 240 Van Horne St., Port Arthur, is the winner of the 1954 Ontario Hydro Scholarship at the Lakehead Technical Institute. A son of Mr. and Mrs. R. P. Nuttall, Port Arthur, he was born on July 29, 1933 at the Lakehead City. He received his primary education in St. James and Central Public Schools. When he graduated from Port Arthur Collegiate he won the Port Arthur Collegiate Scholarship; the Townsend Trophy for scholarship and athletics; the Students' Council Book Prize and the Princess Beatrice Chapter I.O.D.E. Scholarship for entrance to the Lakehead Technical Institute. While attending Port Arthur Collegiate he was a member of the school's senior football team which won the Northwestern Ontario Championship in 1951. Interested in music, he was a member of the P.A.C.I. band and orchestra.

CADET PAUL FLANAGAN



C. A. ROOT



G. A. NUTTALL



# HONOR RETIRING DIRECTOR

John Stark Succeeds David Forgan In Hydro's Construction Division

**A** SPONTANEOUS tribute from a host of Hydro colleagues and division staff members highlighted the recent retirement of David Forgan, the Commission's popular Director of Construction.

Marking the occasion, over 200 of his friends and colleagues attended a complimentary dinner in his honor when he was presented with an illuminated address, a fishing rod, and a leather wallet containing a substantial sum of money as a contribution toward a trip to Scotland and Kenya, Africa.

Eulogizing Mr. Forgan's important role in the Commission's expansion program, several speakers mentioned the fact that visible evidence of his engineering ability could be found in many of the Commission's important new generating stations in various parts of Ontario. Such important plants as the Des Joachims and Otto Holden stations on the Ottawa River; Pine Portage on the Nipigon River, and finally the Sir Adam Beck-Niagara Generating Station No. 2 were built by On-

tario Hydro construction forces while Mr. Forgan was "at the helm."

The story is told that he walked into the Hydro offices in 1919, but was told not to bother to take his coat off, because a job was waiting for him. That job was the St. Lawrence Power Project! At least, as Mr. Forgan remarks philosophically, he was able to remain to see the St. Lawrence started.

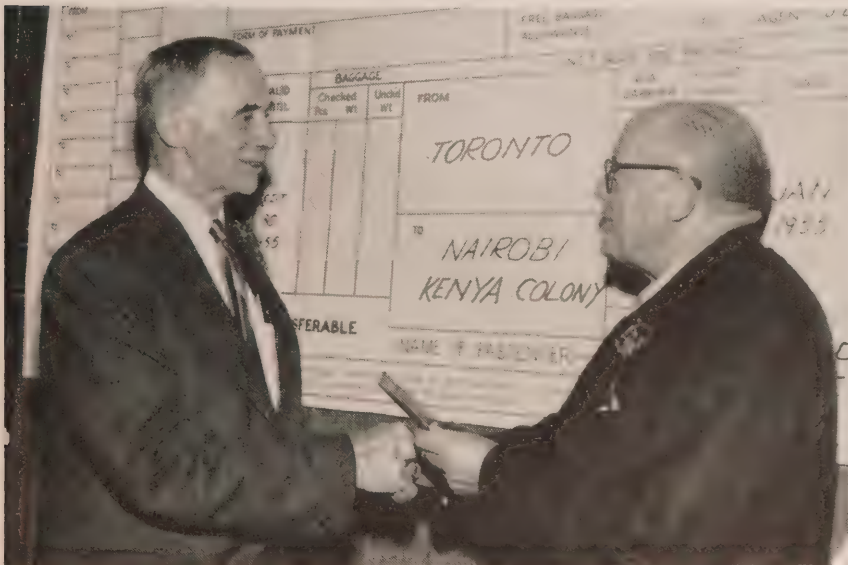
Born in 1889 in the shadow of famed Stirling Castle in Scotland, he attended secondary schools in Stirling and Glasgow, and later the West Coast of Scotland Technical College. After serving his engineering apprenticeship on the Caledonian Railway, he emigrated to Canada in 1911, where he became Resident Engineer, Railway Construction, for the Canadian Northern Railway. At the outbreak of war, he made his way back to the Old Country where he joined up with the infantry. Later he transferred to the Royal Engineers, serving with distinction, and earning the Military Cross.

When he came back to Canada in 1919, he was engaged by Ontario Hydro as Assistant Engineer in charge of hydraulic construction, in which position he continued until his appointment as head of the Construction Department in 1935. When the Construction Division was formed in 1947, David Forgan came its Director, holding this position until his retirement. Married, Mr. and Mrs. Forgan have three daughters.

John Stark, the new Director of the Construction Division, is also an Old Country man. He was born at Woolwich, Kent, England in 1892, and was a scholarship winner at Fox Hill High School and Woolwich Polytechnic.

Coming to Canada in 1907, Mr. Stark served in a number of capacities as machinist, presswork setup, house and store building, and heater and sprinkler work in Toronto and Detroit until 1915, when he joined the 127th Battalion, C.E.F., as a private and rose to company sergeant-major. He was a lieutenant in the 2nd Battalion, Canadian Railway Troops, when he returned to Canada in 1919.

Following the war, Mr. Stark held the important post of Chairman of the Board of Vocational Training for Minors in the Department of Soldiers' Civil Re-establishment in which returning veterans, still under legal age, were given training in the new trade or vocation which they selected. In October, 1919, Mr. Stark joined Ontario Hydro, working out the costs on the construction of stations, and labor and costs statistics. In 1926 he was appointed Superintendent of Station Building, and later worked as Field Superintendent on Station Building. He became Superintendent of Building Construction in 1932 and succeeded the late Cecil Thomas as Station Construction Engineer in 1952. Earlier this year he was named Assistant Director of Construction. Mr. Stark has two sons, Richard Mervyn and Frederick Francis, and two daughters, Joan and Shirley, by Horace Brown.



**BEFORE** an enlarged replica of plane ticket to Kenya, Mr. Forgan, left, accepts a wallet containing a substantial contribution toward his projected trip to the African colony from his successor, John Stark, who made the presentation on behalf of some 200 Hydro colleagues.





“Wi’ a hundred delegates and a’ and a’” burly Pipe Major R. S. Munro sets a brisk pace as he heads this parade to the convention’s main luncheon.

**E.O.M.E.A. annual convention at Kemptville  
commemorates start on long-awaited project**



# ST. LAWRENCE SALUTE

**O**NTARIO will receive its first power from the joint 2,200,000-horsepower St. Lawrence Project late in 1958.

The foregoing announcement was made by W. Ross Strike, Ontario Hydro’s Second Vice-Chairman at the annual convention of the Eastern Ontario Municipal Electric Association.

The assembled delegates, who met at Kemptville Agricultural School in a convention designed to commemorate the commencement of the St. Lawrence development, were told by Mr. Strike that preliminary work had started on the powerhouse.

He stated that rock excavation for the

project is scheduled to start in June, 1955, and to be completed by March 1, 1956. Concreting will commence in September, 1955.

“We expect that turbine construction will be undertaken by April, 1957,” the speaker said, “while the headworks are due for completion in June, 1958.”

## First Four Units

At that time, installation of the generating units (Ontario Hydro’s first outdoor units) will get underway. The first four units are scheduled for service by the end of 1958. The additional 12 generators will be placed in operation at

intervals of approximately six weeks each until completion of the powerhouse in 1960.

Dealing with other phases of the project, Mr. Strike pointed out that one of the chief engineering problems would be the job of passing the natural flow of the river, at all times, around the Long Sault and powerhouse cofferdams. This feat would be accomplished by the excavation of diversion channels on the American side of the St. Lawrence and the construction of the control dams in sections, somewhat similar to the method followed at the Des Joachims project on the Ottawa River.





◀ **H. D. ROTHWELL**, Hydro's St. Lawrence Liaison Engineer (holding microphone), discusses plans for relocating affected communities.

necessary in meeting many of the problems that will occur during the next few years, but "we feel that there are no unsurmountable obstacles" which can prevent the successful and "on schedule" completion of the great project, Mr. Strike concluded.

H. D. Rothwell, Ontario Hydro's St. Lawrence Liaison Engineer, discussed plans for the rehabilitation of communities to be affected by the flooding. Delegates, many of them coming from the areas concerned, were particularly interested in the models of the new communities, which were on display in an adjoining room. Mr. Rothwell took those attending on a "tour" of the proposed new communities and drew an interested and appreciative audience.

#### Pension Plan

Other speakers included Bert Merson, Chairman of the Toronto Electric Commissioners, who reported on the pension and insurance plan advocated for municipal Hydro employees, and urged all commissions to participate. Lt.-Col. A. A. Kennedy, President of the parent O.M.E.A., brought greetings from that body and announced that Eastern Ontario was now represented on the O.M.E.A. St. Lawrence Committee.

A. W. Manby, Ontario Hydro's Assistant General Manager-Administration, commended the Ontario Hydro staff for achievements on the Niagara Project. He reported that water conditions had shown great improvement over last year. Difficulties in meeting all demands during the coming winter are not anticipated, he stated. D. P. Cliff, Secretary-Treasurer of the O.M.E.A. also spoke.

E.O.M.E.A. President E. V. Dyke of Smiths Falls presented an interesting historical summary relating to that part of Eastern Ontario adjacent to the St. Lawrence Project. Mr. Dyke's address received an enthusiastic response, delegates approving the motion that the speech be printed and distributed to each member.

George Findlay, seconded by L. L. Coulter, moved a four-barrelled resolution as follows:

(Continued on page 28)



◀ **THREE** delegates, left to right, C. I. Bacon and Gordon Fairweather, Cornwall, and Ray Thornton, Ottawa, discuss the St. Lawrence Power Project.

Relocation of the communities to be affected by the raised water level will take place in the interval between April, 1955, and April, 1958, Mr. Strike continued.

Turning to the problems facing Ontario Hydro and the New York State Power Authority, the speaker stressed the fact that both organizations must work along parallel lines, paying particular attention to the timing of their individual operations.

Mentioning labor relations for the project, Mr. Strike said, "Ontario Hydro

is shooting at the same target as it had for the Niagara project and the remainder of the province."

#### Employers' Association

The speaker said that the contractors will be organized into an employers' association, in which Hydro will be represented, and in which it will retain a final voice. The employers' association will meet regularly with the labor council of the workers, and the starting rate of wages will be laid down in all contracts.

Patience and understanding will be



"(a) That the H.E.P.C. is to be commended for its successful efforts to provide adequate power supplies for Ontario.

"(b) That, because of highly competitive conditions prevailing in the world markets, it will be more important than ever to provide electrical energy at low cost, and The Hydro-Electric Power Commission and the Hydro municipalities should, therefore, make vigorous efforts to reduce the cost of producing and distributing electrical energy.

"(c) That The Hydro-Electric Power Commission examine the rate structures now in use throughout Ontario to ascertain whether or not they could be revised to promote more economical and effective use of electrical energy.

"(d) That the O.M.E.A. be requested to set up a committee to present these resolutions to The Hydro-Electric Power Commission, and seek action on parts (b) and (c)."

Speaking to the motion, which received approval, Mr. Findlay pointed out that Carleton Place P.U.C. had made a study of typical domestic, commercial and industrial bills throughout Canada.

Other resolutions carried by the convention were:

1. That this Executive recommend to the annual meeting that the District Executive explore the possibility of having the annual fee billed jointly with that of the O.M.E.A., and, if a satisfactory understanding can be reached, that this Executive be empowered to make such an arrangement.

#### Committee Appointments

2. That a letter be sent to Col. A. A. Kennedy approving the appointment of Dr. R. A. Patterson, Col. Jas. Harris and M. J. Elliott on the St. Lawrence Committee, and asking for a definition of the functions and responsibilities of the present O.M.E.A. St. Lawrence Committee.

A third resolution queried the policy of Ontario Hydro in respect to assessment on municipalities for the stabilization of rates.

4. That the name of M. J. Elliott, of Bowmanville, be substituted in the place of Gordon Matthews as director of the O.M.E.A.

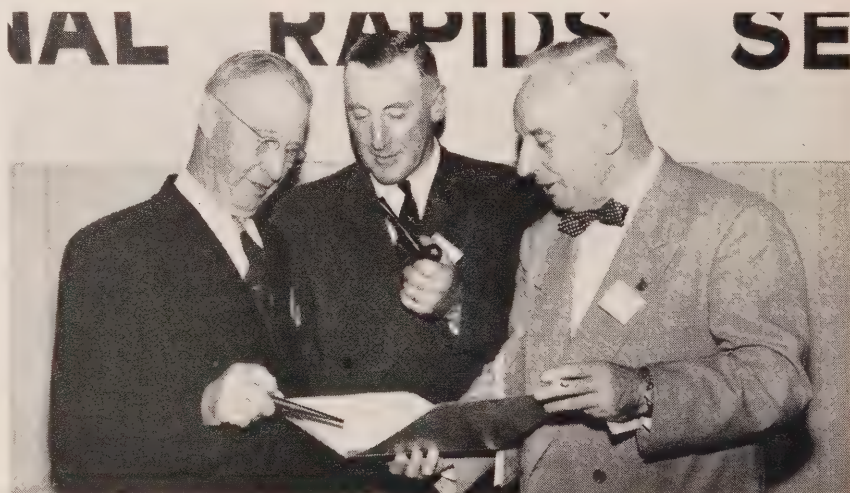
#### Officers Elected

The following officers were elected for 1954:

President, E. V. Dyke, Smiths Falls; 1st Vice-President, J. G. Baldwin, Lindsay; 2nd Vice-President, Dr. R. A. Pat-



W. ROSS STRIKE, Hydro's Second Vice-Chairman (right), seems to be a bit wary of the mallet he is presenting to Dr. R. A. Patterson, Kemptville.



E.O.M.E.A. executive trio, left to right, M. J. Elliott, Bowmanville; Stanley Graham, Newcastle, and President E. V. Dyke, Smiths Falls, meet on the next order of business for the two-day district convention at Kemptville.

erson, Kemptville; Directors, Col. James Harris, Kingston; Geo. Findlay, Carleton Place; L. L. Coulter, Ottawa; Stanley Graham, Newcastle; Fred Hills, Peterboro, and Secretary-Treasurer, Gordon McNeely, Smiths Falls.

The delegates paraded to the luncheon behind the brawny figure and skirling pipes of Pipe Major R. S. Munro. If some of them felt before the march was over, that it was the "last mile," they soon "perked up" when the Hon. James Sinclair, B.Sc., M.A., Federal Minister of Fisheries, began to speak. He is probably the only man in Canada who could successfully find a connection between fish and Hydro, and he proceeded to do

this in masterly and absorbing fashion.

During his address, Mr. Sinclair described the successful efforts to preserve the salmon-fishing industry in British Columbia's Fraser River. This year the Fraser, where salmon yield an annual revenue of some \$30,000,000, had its greatest "run" in history. This was due to co-operation between the Department of Fisheries and the hydro-electric utilities of that area, who had taken measures to preserve this valuable natural resource.

Hydro's First Vice-Chairman, Hon. George H. Challies, extended the vote of thanks to Mr. Sinclair. — by Horace Brown.

## ST. LAWRENCE COUNCILS

(Continued from page 21)

opment immediately, after which Hydro would acquire the land. He also stated that the new Caldwell factory would be substantially larger than the present plant.

Less than 24 hours after the Iroquois Council had given its formal approval of the site selected for relocation, Ontario Hydro took steps to appropriate approximately 319 acres of land, necessary for the re-establishment of the Eastern Ontario village of 1,100 persons which is to be flooded by the St. Lawrence Seaway and Power Project.

Further progress in Ontario Hydro's negotiations with "seaway valley" municipalities to be affected by the mammoth project was indicated on November 22 when two municipal councils unanimously endorsed resolutions of confidence in the Commission.

The Township of Matilda, adjacent to the Village of Iroquois, passed the following resolution moved by Deputy-Reeve Allan Farlinger and seconded by Councillor Wilfred Cooper: "This council expresses its confidence in Ontario Hydro and is prepared to co-operate with it in getting on with the work at the earliest possible time."

Township of Williamsburg councillors gave unanimous assent to the following motion proposed by Councillor D. Kyle and seconded by Councillor Harold M. Marcellus that: "This council express complete confidence in The Hydro-Electric Power Commission of Ontario during the St. Lawrence Seaway Development."

## HYDRO DAY

(Continued from page 8)

increased from 110 in December, 1952 to 827 as of October 1, 1954. They are now served by 269 miles of line.

Blind River, located in the centre of this new rural area, has for more than a quarter of a century been solely dependent upon its lumber trade. Now, with the discovery of uranium, coupled with adequate supplies of power from Ontario Hydro, its citizens are looking forward to a bright and progressive future.

"We know that any industry that comes to Blind River is welcome," Mayor Berthelot told the meeting. "We have everything industry requires and on top of that we now have plenty of Hydro power. That is a great asset to any community."

—by A. A. Bolté.

## APPRECIATION

SINCERE appreciation of the assistance and co-operation rendered by Ontario Hydro in the recent flood emergency is expressed in two letters addressed to Chairman Robert H. Saunders.

The letters are as follows:

November 22, 1954.

Dear Mr. Saunders:

The emergency phase following the tragic floods which hit the Toronto area is coming to a close and it gives me the opportunity to express the sincere thanks of this Society for the outstanding assistance afforded us by the Hydro Power Commission. The Red Cross depends completely, in the efficiency of its operations, on voluntary assistance and although it was slightly out of our field, we found ourselves necessarily engaged in supplying various communities with heavy equipment. The Commission was most generous in supplying us with the tools as well as very valuable pieces of heavy equipment which proved to be so necessary.

We would like to pay tribute to members of your staff — Messrs. S. Hummell, G. Severin, J. Dibblee, as well as Messrs. A. W. Manby, H. F. Anderson and E. Thompson of the Service Centre. These gentlemen and many others co-operated with us to the fullest extent at all times and we cannot speak too highly of their service.

On behalf of the Canadian Red Cross Society, may I express through you to the Commission and your staff, our very grateful thanks.

Sincerely yours,

MARSHALL STEARNS

President, Toronto Branch

The Canadian Red Cross Society.

November 24, 1954.

Dear Sir:

Now that the excitement caused by the recent flood disaster has subsided, I would like to take this opportunity of extending to you my sincere thanks for your invaluable assistance and co-operation.

I am sure, had it not been for the equipment and men you so readily made available to us, additional lives would have been lost. There are many, to-day, who owe their lives to you and your staff.

I would, indeed, be most grateful if you would also convey my thanks to Pilots J. A. MacKay, Bruce Best, and Stan King. Truly, these men are to be highly commended. I doubt whether their many heroic deeds will ever be known. On many occasions, without the slightest hesitation for their own safety, they risked their lives to save others. I recall in one particular instance, when all other attempts failed, Pilot Bruce Best, manoeuvred his helicopter to a practically impossible position and rescued an elderly couple stranded on a rooftop.

I am also grateful to the engineers and ground crews, who were responsible for keeping the helicopters in the air at all hours.

Thanking you again, I remain

Yours very truly,

A. HAMILTON

Chief Constable,

The Township of Etobicoke.



# CHRISTIAN'S *Christmas Gift*

**Hydro crews complete laying of longest  
stretch of underwater cable to serve  
large Indian Reservation in Georgian Bay**



HYDRO linemen, left to right, Manuel Pilon, Norman Ladouceur, Don McGinis, and Bud Larmand haul the Christian Island terminal of the heavy cable ashore for anchoring prior to the laying operation.

**H**ISTORIC and peaceful Christian Island on Georgian Bay—where warring Indian tribes lived more than 300 years ago—recently joined the Hydro family after the greatest submarine cable-laying operation ever undertaken by Ontario Hydro.

The underwater cable, stretching nearly 2.2 miles from the island to the mainland at depths of 150 feet in some places, means that the first Hydro power can be delivered by Christmas to the island, an Indian Reservation which comprises some 350 descendants of the Chippewa tribe.

"This is the greatest thing that ever happened to these fine people," J. Emmett Morris, Regional Supervisor, Indian Affairs Branch, Canadian Department of Citizenship and Immigration, told Ontario Hydro News. "No Christmas gift in the world could compare with this—the coming of Hydro. It is no wonder there are smiles on all their faces."

For many years, coal oil lamps have been the only source of light for the 70 houses, while a 200-horsepower diesel unit has provided power for a sawmill operated by the residents. A small amount of additional electricity was produced by a gasoline-operated generator. Now all of this island's equipment, except the sawmill, will be operated by Hydro power, and for the first time Christmas trees will glow with electric lights.

## Home of the Hurons

Christian Island, home of battle-scarred members of the once-powerful Huron tribe in the 17th century, is the largest and only inhabited of three adjacent islands reserved by the Canadian Govern-



SELF-PROPELLED "Hydro Duck," originally designed as an army landing craft, and the only boat of this type owned by Hydro, was used in the unique Christian Island operation.



**EDWARD** Dubeau, left, and Bud Larmand, Penetang R.O.A. linemen, keep a watchful eye on the 17-ton reel as the 11,400-foot cable is "played out" along a prescribed course between the island and the mainland.



**CHECKING** the progress of the project by transit and radio from the mainland are, left to right: Jack Beaver, Line Superintendent, Georgian Bay Region; Christian Island Reservation Chief Leonard Monague, and Bert Rutherford, Hydro lineman, Penetang R.O.A.

ment in 1856 for the Chippewas of Lakes Simcoe, Couchiching and Huron. Its residents elect their chief and council every two years to handle local affairs.

Just three years ago this council voted in favor of a proposal to obtain Hydro power. A preliminary survey was made to determine the amount of cable which would be required to span the open stretch of water. A few weeks ago, a nine-man work crew, headed by Hydro Line Foreman Ed. Beausoleil of the Penetang Operating Area, began the task of laying 11,400 feet of No. 4 (paper-insulated, lead-covered) armored cable to provide the electrical link between the island and mainland.

### 17-Ton Reel

The operation started at Midland Shipyards where a 50-ton crane loaded a 17-ton reel of cable on to an army LST, self-propelled landing craft, nicknamed the "Hydro Duck," from a freight car. The boat or barge, skippered by Capt. Rex H. Scaiff, picked up its work crew at the Christian Island government wharf on the mainland near Cedar Point, some 14 road-miles northwest of Penetang.

Accompanied by two Hydro work boats carrying Ontario Hydro representatives from Toronto, Penetang R.O.A. and the Georgian Bay Regional Office at Barrie, as well as Christian Island Chief Leonard Monague and Councillor Merritt McCue, the "Hydro Duck" cut across the choppy channel to the island. As it reached the shore, the barge was greeted by a small flotilla of outboard motor boats filled with curious and excited islanders.

Four linemen hauled one end of the cable ashore and anchored it in position. A trench was dug later to bury it as protection against snow and ice. Engines picked up speed and the "Duck" headed back across the channel, allowing the cable to roll from the reel at a rate of 200 feet a minute.

Throughout the operation, constant attention was necessary to keep the cable taut to prevent slackness which takes place when the cable is laid too rapidly. If this had occurred, loops might have formed in the cable, inducing weakness and possible breakage at those points. To prevent this development, therefore, two long planks were braced under the bottom of the reel as levers. Two men sat on the opposite ends of each plank exerting pressure on the reel, and creating a braking action. At times, water had to be poured over the planks and reel to minimize the danger of fire which might have resulted from friction set up by the braking on the reel.

### Straight Course

A second major problem was the maintenance of a straight course for the barge. Markers on both shores indicated the exact line along which the cable was to be laid. Relying entirely upon the human eye was not considered accurate enough so a radio beam was established.

On the mainland, a transit (instrument used in surveying) was sighted on the island marker. The operator, using a two-way radio, maintained constant communication with Gil Sauve at the helm

of the work boat, "D. G. Ferguson." Sauve manoeuvred at the direction of the transit operator until his craft was "on the beam" between the two markers. The barge simply followed in the wake of the work boat, and thus avoided any marked digressions from course.

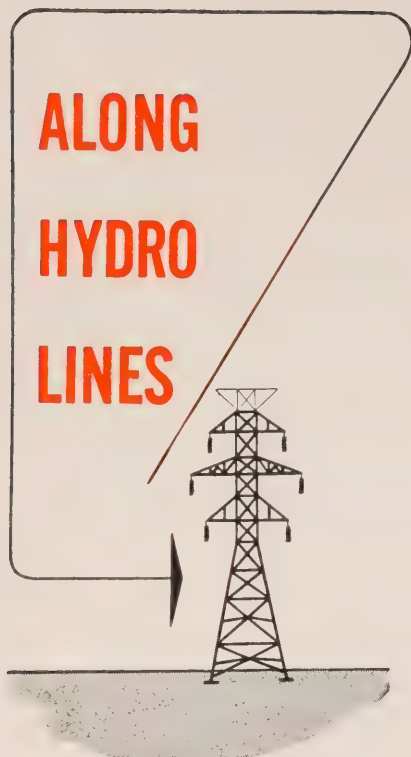
In about one hour, the barge eased to the mainland shore. Hydro's biggest submarine cable laying was a complete success. Prior to this achievement, the 1.9-mile stretch of underwater cable from Thorah Island on Lake Simcoe opposite Beaverton to shore was the longest underwater distribution line ever laid by Commission crews.

Already, reports C. S. Wice, Area Manager of the Penetang R.O.A., about 42 applications have been received from the reservation for electricity. It is expected that all the houses will be wired eventually.

Responsibility for the maintenance of this new underwater cable to the Christian Island Indian Reservation falls to Jack Beaver—Line Superintendent of the Georgian Bay Region and a former Chief of the Mississaugas of Alnwick Indian Reserve at Rice Lake, Ontario.

As the work crew completed final details, the Indian Affairs Regional Supervisor turned to V. A. Beacock, Hydro's Rural Service Engineer, and paid tribute to Ontario Hydro and its rural operating area crews throughout the province. "We in the Indian Affairs Branch," Mr. Morris said, "are proud of the fact that practically all the Indian reservations in Southern Ontario are now being served by Hydro power."—by *A. A. Bolté*.





### **Linemen's School At St. Thomas**

Some 20 St. Thomas and district linemen have been attending a weekly school of instruction arranged by Canadian Westinghouse Company in recent weeks. The course, which deals mainly with distribution types of transformers to promote safety precautions among linemen, is being held in a new assembly hall at a St. Thomas P.U.C. substation. The attractive hall, which is equipped with blackboards, film screen, and other facilities, was completed by using material salvaged from the former P.U.C. office under the supervision of Hydro Department Supt. Herb Aitken, Asst. Supt. Lorne MacVicar, and Frank T. Ford, Assistant to the General Manager.

### **Collingwood Staff Gets Five-Day Week**

Effective November 1, hours of work for Hydro line department and water-works maintenance department employees of Collingwood Public Utilities Commission were reduced from 44 to 40 hours per week with the same "take-home" pay. Henceforth these employees will work from 8.00 a.m. to 5.00 p.m. Monday through Friday, with a minimum of two hours at time and one-half for emergency calls.

### **Moving Customers Pay Deposit**

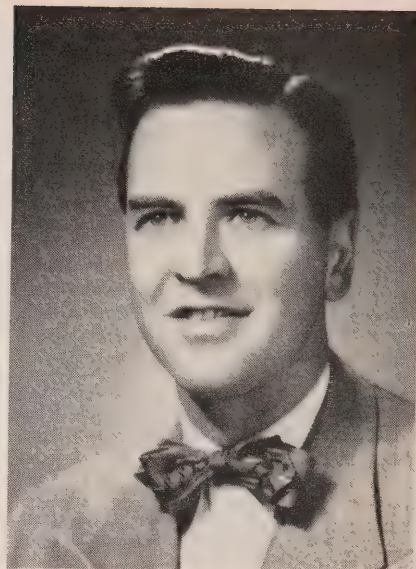
Domestic customers who move are required to pay a \$10 guarantee deposit before obtaining electrical service, Ottawa Hydro reports in commenting on public reaction to this charge. The commission, which instituted the deposit system in 1953 after public utilities were declared ordinary creditors in bankruptcies and business failures, has experienced a decreasing number of complaints. Industrial and commercial customers are required to pay a deposit based on \$5 per kilowatt of estimated connected load or billing demand.

### **Hanover Modernizes Street Lighting**

First step in the modernization of Hanover's street lighting has been completed by the local public utilities commission. The project, which included the re-arrangement of primary and secondary circuits, and the installation of 28 steel standards with underground control, was carried out by the commission along one side of the town's main thoroughfare in conjunction with a municipal street widening scheme. The opposite side of the street will undergo similar changes at a future date, involving, as well, the removal of telephone poles and lines.

### **Plan Two Tunnels Under Cornwall Canal**

Two tunnels, located immediately opposite the site of the main powerhouse of the St. Lawrence Power Project, will be built under the Cornwall Canal during the coming winter months. This was revealed recently by Gordon Mitchell, Ontario Hydro's Director of the St. Lawrence development. One tunnel, with a diameter of 16½ feet, will handle vehicular traffic, including 15-ton trucks. The other, 10 feet in diameter, will accommodate a conveyor to transport sand and crushed stone from the stockpile areas to a mixing plant situated south of the canal on the Canadian mainland. Pedestrians will also use this tunnel. Cement will be blown through a pipe laid in the smaller tunnel to the mixing plant. In addition, a swing bridge will be built over one of the locks to move heavy machinery. Vehicular traffic over this bridge will be restricted to avoid interference with navigation.



**BRUCE WEBER**

Former Mayor of Kitchener who was recently named by city council to fill the unexpired term of the late Harvey J. Graber on Kitchener Public Utilities Commission.

### **D. N. Duffy Retires As Statistician**

D. N. Duffy, Statistician, Consumer Service Division, who has been associated with the Commission for over 40 years, has retired but will remain in an advisory capacity for a period. He has been succeeded by J. G. Baird, who has, for several years, filled the post of Assistant Statistician.

### **Chapleau Favors Hydro System**

Chapleau citizens recently voted 185-32 in favor of establishing a municipally-owned Hydro system in affiliation with Ontario Hydro. For several years Chapleau power users have purchased power from a private company. Under a plebiscite-approved system, the local municipality will purchase the distribution facilities from the private company and will establish a local municipal commission to administer the supply of electric power to the town residents. The local commission will purchase power from the private company and necessary additional power from the Ontario Hydro. The Commission will install two diesel units of 500 kilowatts each to supply the additional power.

### **Favor Outside Meters For Domestic Customers**

New domestic customers of Peterborough Utilities Commission will have meters installed on the outside of their homes, the local commission ruled recently. The new meters are designed for three-wire service, with an extra wire for flat-rate water heaters. They will be installed seven feet above the ground, with pipes running to the eaves. General Manager W. Howard Powell, in advocating adoption of the new-type meters, stressed that savings would be effected in electrical maintenance costs, including second trips to homes to obtain meter readings. The new ruling affects only new homes built henceforth, but eventual exterior placing of all meters is the plan of the commission.

### **Port Burwell Plans Vote on Hydro**

Port Burwell Village Council has authorized the preparation of five by-laws preliminary to establishment of a municipally-operated Hydro system in the near future. One by-law provides for submitting the questions to the electors at the next municipal election. The village ratepayers will vote on the question of purchasing power from the Ontario Hydro on a cost contract basis; and purchase of the present Hydro facilities and authorizing of issuance of debentures to permit this purchase. A third by-law to be voted on will provide for establishing an elected public utilities commission. The two commissioners will not be elected until the following year as provided by the fifth by-law.

### **Woodstock Adopts Prepayment Meters**

Prepayment meters will be installed in the houses or premises of Hydro customers who are consistently in arrears with their bills, it was decided at a recent meeting of Woodstock Public Utilities Commission. These meters will control the electric current, automatically taking care of the payment or shutting off the service.

The local commission also announced that its office and outside staffs have adopted a five-day week, following the lead of Woodstock municipal staffs. The P.U.C. staff work the same total number of hours per week, the daily schedule having been worked out by the office management.

### **Veteran Cobourg Foreman Passes**

Suffering a heart attack, Edward Burns, veteran foreman of the Hydro Department of Cobourg Public Utilities Commission, died in Kingston recently while visiting his son. Born at Deseronto, he had lived in Cobourg for 40 years. First employed with Cobourg Hydro system, he had held the position of foreman with the local public utilities commission for over 30 years and was due for retirement in November. Married, he is survived also by two sons, a daughter and a brother.

### **Use Hydro Towers To Dry Hose**

Six steel Hydro towers have been acquired by the Swastika office of the Ontario Department of Lands and Forests. Formerly used to carry a power line to a mine in Bannockburn Township, north of Matachewan, Ontario, the towers are to be used for drying hose maintained by the Swastika branch of the department for its frequent fire-fighting operations in this section of Ontario's north land. The towers have not been used for power transmission since the mine was closed five years ago.



## **STRATFORD HONORS RETIRING MANAGER**

**R**ETIRING after 26 years' outstanding public service, A. B. Manson, General Manager of Stratford Public Utility Commission, was feted recently at a complimentary dinner. Some 40 guests applauded as Commissioner W. F. Nickel presented Mr. Manson with a silver tea service while Mrs. Manson received a bouquet of flowers. Chairman A. R. Moore presided and introduced several speakers who paid tribute to Mr. Manson's work in the interests of civic progress, including Mayor Lawrence Feick; Chalmers Greenwood, former mayor and P.U.C. member for 27 years; Guy C. Parker, retired Ontario Hydro engineer; J. Waldo Monteith, M. P., Perth, and Commissioner A. E. MacIntyre. Letters and telegrams of congratulations and best wishes from Lt. Col. A. A. Kennedy, President of the O.M.E.A.; Hydro Chairman Robert H. Saunders; Bert Merson, Chairman of the Toronto Electric Commissioners and Secretary-Treasurer of the Municipal Hydro-Electric Pension and Insurance Committee, and W. H. Gregory, Stratford, were read during the dinner. In the photograph above, Vice-Chairman Nickel (left) congratulates the guest of honor after presenting him with the tea service in the foreground. Mrs. Manson and Chairman Moore also participated in the presentation ceremonies.





## SAFETY RECORD RECOGNIZED

ONTARIO Hydro's line crew in the Cooksville district west of Toronto has established a unique safety record — 2,501 consecutive working days without a "lost-time" accident. This is equivalent to 10 accident-free years, according to J. J. Durand, Line Superintendent, Toronto Region, who with Manager Adam Smith, presented lighters to members of the crew at the recent regional banquet at which A. W. Manby, Assistant General Manager—Administration, was guest speaker.

Commended for this outstanding achievement in safety—regarded as the finest to date in Commission annals—the crew consists of: Foreman Harry Flack, Marlin Early, William Cain, J. Reburn, George Bell, Clifford Gilmoure, John Humphreys, Ronald Fortier, William McGillvray, Stewart Gould, Bruce McHardy, James Ruse and James Robbins.

Some members of the crew, left to right, George Bell, William Cain and Foreman Flack, are shown with Mr. Durand and Mr. Smith during the presentation ceremony. Mr. Durand paid tribute to the memory of his predecessor, the late Duncan McCallum, who died earlier this year, and who, as the original foreman of this crew, was responsible, to a great degree, for the building of a sound foundation for safety consciousness.

### Southern Ontario Demands Set New, All-time Record

Primary energy demands and primary peak demands on the Commission's Southern Ontario System established a new, daily record on November 24 this year. Primary energy demands soared to a new high of 55,014,000 kilowatt-hours, according to preliminary figures, while the primary peak demand registered a new all-time level of 4,066,000 horsepower (3,033,000 kilowatts).

Reflecting the increasing applications of electricity among municipal and rural customers, and the continued tempo of industrial and commercial activity in

the province, the primary energy demand represented an increase of approximately 3,291,000 kwhrs. over the 51,723,000 kwhrs. recorded for the corresponding day a year ago.

The primary peak demand, reached shortly before the supper hour, increased by approximately 280,000 horsepower (209,000 kilowatts) over the 3,786,000 horsepower (2,824,000 kilowatts) for the corresponding day in 1953. This new peak is equivalent to more than twice the ultimate 1,828,000 horsepower (1,370,000 kilowatts) of installed capacity at the Commission's new Sir Adam Beck-Niagara Generating Station No. 2.

### Electrical Equipment Popular at Kitchener

Figures now available concerning changeover to 60-cycle operation, which was virtually completed in Kitchener recently, reveal that Hydro customers in this city have a high appreciation of the value of electrical equipment.

Kitchener domestic customers are making use, on the average, of 4.6 frequency sensitive items, excluding clocks and fans exchanged for 60-cycle models, for which no separate totals for Kitchener are available.

Statistics concerning changeover, effected both by the Kitchener Public Utilities Commission under the advance program, and by Ontario Hydro show that 14,730 domestic, 1,539 commercial and 340 power customers have had their electrical supply standardized at 60 cycles. Items changed over totalled 114,381, comprising 67,669 for domestic customers, 21,745 for commercial, and 24,967 for power users.

Major domestic items standardized included 12,879 washing machines, 11,669 refrigerators, 3,998 oil burners, 8,352 record players, and 4,652 pieces of hobby shop equipment.

The heavy saturation of 4.6 frequency sensitive items per domestic customer (excluding clocks and fans) was, of course, in addition to items not affected by cycle change, such as stoves without timing devices, electric kettles, hand irons, electric fires, etc.

## Classified Ads

### FOR SALE

Toronto Transit Commission has a quantity of used steel poles for immediate sale as follows:

3-section poles—6-inch base tapering to 4" top, length 28 feet @ \$35 each at T.T.C. yard

3-section poles—6-inch base tapering to 4" top, length 24 feet @ \$30 each at T.T.C. yard

These poles are subject to prior sale and are located at the T.T.C. pole yard, 1138 Bathurst Street. Inspection may be arranged by contacting M. F. Middleton, 35 Yonge Street, Toronto, or calling ME1rose 3581.



## HONOR CHANGEVER OFFICIALS

**A**T a recent banquet the Canada Wire and Cable Co. Ltd. honored officials, engineers and technicians of Ontario Hydro and its contractor on frequency standardization, the Canadian Comstock Co. Ltd., for an "outstanding job" of 60-cycle changeover at the Canada Wire Company's big Leaside plant. Paying tribute, Canada Wire Vice-President and General Manager L. G. Lumbers said the "exceptionally complicated" undertaking had been "well done." Seen here checking over a list of the more than 5,100 separate items that were converted at the plant are, from the left, C. C. Rathgeb, President, the Canadian Comstock Co. Ltd.; H. H. Leeming, Director, Frequency Standardization Division, Ontario Hydro; G. Anthony, industrial changeover supervisor, Canadian Comstock; F. A. Pankhurst, General Works Manager, Canada Wire and Cable Co.; and Mr. Lumbers.

## NO INCREASE IN 1955 HYDRO RATES

**A**T a recent meeting of The Ontario Hydro-Electric Advisory Council in Toronto, members were informed by Chairman Robert H. Saunders that there will be no general increase in Ontario Hydro's interim rate to the municipalities in 1955, nor will it be necessary to increase rural Hydro rates next year.

Dealing with the subject of frequency standardization, Mr. Saunders said that the amazing progress of the program and the economies achieved reflected the highest credit on the engineers, technicians and staff undertaking this work. Council members were advised that a total of 443,628 customers of all classes, or 49 percent of the estimated total, had been changed over to receive 60-cycle power supply up to the end of August, 1954. The Commission has also standardized or exchanged a total of

2,720,633 frequency-sensitive items, or 52 percent of the estimated total for the program.

Dealing with the estimated cost of the total program, Mr. Saunders said, "The statement I made last November 11 still holds true. At that time I said that Hydro's consultants and officials had estimated that the present program may reach two-and-a-quarter times the cost of the original program. With the above figures before us we are even more optimistic that the cost of the program will not be more than \$400 million."

The Advisory Council was also given a confidential report on developments regarding electric power from atomic sources, as well as details of negotiations in relation to rehabilitation of the St. Lawrence communities.

## First Cofferdam Seals off River

The first step in the huge task of closing off the flow of the St. Lawrence River on the north shore of Barnhart Island, where a 2,200,000-horsepower generating station will be located, has been completed. Ontario's share of the new project will be 1,100,000 horsepower.

The first of two, man-made rock barriers, known as cofferdams, has been constructed across the north channel of the river, between Sheek and Barnhart islands. The 500-foot long cofferdam, under construction by the Mannix-Rammond Construction Company, involved the placing of some 14,000 cubic yards of rock between the two islands.

To make the No. 1 cofferdam completely watertight, some 78,500 cubic yards of earth will be placed on top and behind the rock core. This phase will be finished by December, leaving the downstream portion of this section of the river completely dry.

The second and larger cofferdam, a 4,500-foot long structure, will be located immediately below the powerhouse site, and will consist mainly of 59 cells requiring 11,900 tons of steel, much of which comes from the Algoma Steel Mills, and 394,000 cubic yards of earth for ballast. It will be finished early next spring.

With the completion of the two structures, the river area of the powerhouse dam will be pumped out, permitting work on this phase of the major installation to proceed "in the dry."

## NEW TREND

*Continued from page 13*

H. O. Hawke, Galt; Secretary-Treasurer, R. B. Hanna, Listowel. Directors: I. H. Francis, Tavistock; A. E. McIntyre, Stratford; Dr. H. A. Mutton, Mitchell; R. Grant Charlton, Hespeler; Mayor J. I. Huckins, Goderich; I. A. Shantz, Kitchener; H. Schiefele, Waterloo. An eighth director will be appointed at the discretion of the executive.

Next year's annual convention of District No. 6 will be held in Goderich, the date to be announced.—By Denis A. Heeney.



# This and That

Ontario Hydro employees have been receiving some verbal "bouquets" from newspapers in the Toronto area for their rather noteworthy contributions to charitable causes. A province-wide canvass among members of the Commission's staff resulted in the formal presentation of a cheque for \$51,000 to the Ontario Hurricane Relief Fund on November 2. However, this was just the beginning. As the drive among the staff continued, an additional \$23,204.68 was collected, making a total of \$74,204.68 donated for the relief of Hurricane Hazel victims.

Close on the heels of the Hurricane relief appeal came an urgent call to "Close the Gap" in the Community Chest campaign. Ontario Hydro staff members in the Toronto area emptied their pockets of all loose change, enriching Community Chest coffers by \$930.46, establishing a record for the change "round-up" in any single organization. According to a *Toronto Globe and Mail* report, "Hydro folk, in emptying their pockets of change, gave enough to foot the bill for a day's food, board, nursing and complete medical services for 400 persons in a home for the aged." Of course, this response to the "Close the Gap" appeal was in addition to the regular contributions to the Community Chest which staff members made through the normal channels.

A doff of the hat, also, to Toronto Hydro employees. The Employees' Charitable and Welfare Fund donated \$2,000 in aid of hurricane victims; the Toronto Hydro-Electric Club forwarded \$250 while garage employees sent \$36 to the *Globe and Mail* fund. Additional money is still being collected by payroll deductions.

Elsewhere in this issue, reference is made to the annual award of Ontario Hydro scholarships. The Association of Professional Engineers on November 19 this year announced the award of 19 engineering scholarships to students at Queen's University and University of Toronto. Total value of the awards is \$1,350. Among the list of winners of A.P.E.O. Scholarships, it is of interest to note the names of Keith Fillmore, Truro, N.S., and E. R. R. Funke, of Morrisburg, both of Queen's University, who were also selected to receive the 1954 third- and second-year Ontario Hydro scholarships. Ian M. Duck, Kamloops, B.C., who was presented with the second-year Ontario Hydro award at Queen's University last year has been honored with a third-year A.P.E.O. Scholarship for 1954.

Doing a little research on the electrical history of Blind River, Ontario, which was recently incorporated as part of the Ontario Hydro System (see page 6) we made a rather interesting discovery. The first and second annual reports of Ontario Hydro for 1908 and 1909 (issued in consolidated form) make reference to the possibility of supplying power to this Northern Ontario community. According to a summary in this consolidated report, the authorities were considering the possibility of developing power at White Falls on the Blind River, 10 miles north of the town of the same name. Apparently Blind River was a community of very modest size in 1908, as the report observes that "the market at present existing in the town is not of sufficient importance to warrant development on the locations available." The study was made specifically for the purpose of "obtaining power prices which could be held out as an inducement for the establishment of manufacturing industries."

A vast change has taken place in this northern municipality since that time. For more than 25 years an important lumbering centre, Blind River has been placed in the limelight by its proximity to one of Canada's largest uranium deposits.

Speaking of uranium and the concomitant subject of atomic warfare, it was refreshing to note the recent conference held in Toronto which considered the question of what Christians can do about international "tensions." Arranged by the Diocesan Council for Social Service of the Church of England, the speakers' panel included such prominent persons as Rev. W. R. Coleman, D.D., Principal of Huron College; Dr. Hugh Keenleyside, Director-General of Technical Assistance Administration of the United Nations; Dr. David A. Keys, Advisor to the President, Atomic Energy of Canada Ltd., and Dr. Edgar McInnis, President of the Canadian Institute of International Affairs. Chairman of the conference was none other than that public-spirited Torontonian, Bert Merson, Chairman of the Toronto Electric Commissioners.

A recent issue of *MacLean's Magazine* told the story about a little old Vancouver lady who walked into the office of B.C. Electric Company and asked for a quotation on the installation of a meter jumper. "How's that?" asked the clerk, who knew very well that it's a highly illegal device to tap the electric lines to avoid running the power through a meter. "I'm not exactly sure what they are," the lady said, "but the man next door has one, and he says it saves him an awful lot of money."

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No trumpet-blast profaned  
The hour in which the Prince of Peace was born;  
No bloody streamlet stained  
Earth's silver rivers on that sacred morn.

— BRYANT









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Ontario. Hydro-Electric Power Commission  
Hydro news.  
v. 40-41, (1953 and 1954)

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